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PRACTICAL POINTS AND COMMON ERRORS IN THE TREATMENT OF STERILITY

EDWARD REYNOLDS, M.D.

BOSTON

A now considerable experience in the management of reference cases of sterility has made the history of certain failures in diagnosis and treatment so familiar that it is easy to classify under a number of distinct headings those which occur most frequently. The fact that certain particular points turn up with such unvarying frequency makes it seem that a brief description of them might be of interest.

The classes so formed comprise sterilities due to mistakes in the marital relation; to neglect or failure to appreciate sterility in the male; the subjection of innocent abnormalities to unnecessary and nonproductive operations, and failures to detect evident causes of sterility from lack of special training in microscopic examinations.

Each one of these subjects would be sufficient to occupy an entire paper if fully discussed, and the attempt to treat them all within a single article necessarily implies a restriction of each of them to but a brief outline, with, in a few instances, a skeletal report of an illustrative case.

STERILITY DUE TO MISTAKES IN THE MARITAL RELATION

Mistakes in the management of the marital relation are not infrequently by themselves a sufficient cause of sterility, usually by the production of congestion and its results. Such mistakes in marital life are not usually perversions. They may even appear trivial and yet, if long persisted in, produce important results or even changes in the organs which may demand operative treatment before pregnancy can be obtained. It is very disappointing for patients to travel, perhaps long distances, to see a specialist only to receive directions to try a change of habit and if this is unsuccessful to report again, and this is a very frequent cause of sterility which the general practitioner ought really to be capable of detecting, and of correcting, so far as change of habit is concerned, before sending his patients away.

Many practitioners find it difficult to question patients on this subject, partly from consideration for the feelings of the patient and partly from failure to know themselves exactly what questions should be asked. The subject is, to be sure, a difficult one; but such patients are usually conscious of an imperfection or defect in their sensations. When sterile they are often very anxious about it, and if the subject is opened frankly and without preface it is often surprising to see with what readiness and, indeed, eagerness they respond to questions which they themselves instinctively believe are essential to a proper understanding of their case. Especially women often express the greatest gratitude for a frank discussion of this subject and for the instruction which follows it. It is quite essential that each partner should be questioned separately, and the keynote to the subject is that any continued error of habit which produces excitement without subsequent relief by the orgasm tends toward chronic congestion and its unfortunate results.

The point which the patient has noticed is usually decrease or lack of satisfaction during coitus. Frequent amorous caressing without cohabitation appears to be a not uncommon mistake in married life, and if habitual and frequent it is always unfortunate in its results on the organs of one or both partners.

Want of simultaneous chronicity in the orgasm, i. e., ejaculation by the male before the female has reached the possibility of the orgasm, is an extremely frequent cause of chronic congestion in the female and of its consequences in the uterus, tubes and ovaries. If it is a mere personal idiosyncrasy of the male it can in most instances be altered by psychologic restraint on his part after the necessity for it has been explained to him. It is sometimes, however, the result of a local irritation somewhere in the male organs which produces premature ejaculation, and it then demands the appropriate local treatment.

The very common practice of prevention of pregnancy by withdrawal usually deprives the female of the orgasm, and many cases are seen in which prudential prevention of pregnancy in early married life has set up consequences of congestion which persist after pregnancy is desired.

Marked congestion of the feminine organs sometimes produces a mental condition in which desire is frequently present in advance of cohabitation, and even at times when it is impossible, but in which the orgasm fails to appear during coitus, with consequent increase of the congestion. In these cases, decrease of congestion by glycerin depletion of the vagina will frequently break the vicious circle and restore normality.

Habitual excess in even normal coitus tends to congestion and, if long continued, to sterility.

Merely psychologic causes of failure to obtain the orgasm are also quite common among women and may sometimes be dispelled by ascertaining the origin of a psychic impression of distaste for coitus and giving appropriate advice.

This subject is evidently too complicated for brief discussion; but adherence to the principle that excitation without orgasm is a frequent cause of local disturbance and consequent sterility furnishes a safe guide for questions. When any one of these or other mistakes in coitus is remedied before it has been of long continuance the mere correction of habit, or such correction in connection with minor local treatment, frequently yields a prompt pregnancy. When, on the other hand, the congestion which results from such habits has been long persistent it has not infrequently produced changes in the prostate, deep urethra or vesicles, or in the cervical or uterine mucous membrane and even in the ovaries, which may require long continued treatment or even an operative correction before pregnancy can be secured.

MALE STERILITY

Impregnation is the result of the cohabitation of a fertile male with a fertile female, and the fertility of both sexes is essential to it. It would seem ridiculous to insist on so elementary a point were it not that almost daily experience in practice shows that the public, and a large portion of the profession, has the habit of taking the fertility of the male for granted. This is far from being the fact either in the human race or among domestic animals. In my experience with human sterility the male has been involved in about 50 per cent. of all cases, and, moreover, the majority of male sterilities have been of nonspecific cause. I am afraid that the profession in general believes that in the absence of a history of venereal disease, and more especially of gonorrheal epididymitis, the healthy young male is always fertile. This is far from being the fact. On the contrary, young males of healthy appearance may be, and not infrequently are, infertile from either congenital or local causes without any noticeable disturbance of general health. It may be said here too that at the outset of any intelligent consideration of sterility we must drop the too general conception that a given individual is necessarily either flatly sterile or fully fertile. We must realize that fertility is a relative term, and that we shall deal with every degree and gradation between high fertility and complete sterility. This statement is capable of definite microscopic proof in the male and is probably equally true of the female, although its definite establishment in the human race is in her more difficult. In the case of every male, as also in the female, we must hold ourselves ready to investigate congenital, constitutional and local causes for infertility.

Congenital or, more properly, conpubertal sterility is the result of an arrested development of the genital organs, and is not very uncommon even in otherwise fine specimens. It may vary all the way from undeveloped, infantile testicles (usually associated with a rather small penis) and complete aspermia to a mere low normal in both respects. Its susceptibility to improvement varies with its degree. With infantile testicles and complete aspermia there is usually nothing to be done, while, on the other hand, the underdeveloped person who is nevertheless not far from the normal standard may usually be stimulated into a fair degree of fertility.

The profession apparently believes, too, almost universally, that if the inspection of a drop of semen under the microscope shows motile spermatozoa, the male is fertile. Nothing is more common than to see correspondence, often from physicians excellently well trained in other respects, which states that the husband is all right, whereas subsequent examination reveals that his fertility is so low as to render him a very doubtful element in the case. Experimental studies of animals in the breeding laboratories conducted by examination of their spermatozoa and checked by subsequent breeding of the animals have shown that if specimens of semen are divided into four classes according to the number of spermatozoa occurring in them, and again into four classes according to the percentage of motility in the spermatozoa, the animal may with safety be regarded as sterile unless both numerical frequency and motility are at least of the second class; namely, unless the animal belongs in one of the first four of the sixteen classes so produced. My own experience in the human race has perhaps gone further than this, tending to show that in estimating the fertility of a given male we must not only judge of the numerical frequency of the spermatozoa and of the percentage of motility present, but must, furthermore, study carefully their vitality both as it is determined by duration observations and, what is still more important, by the quality of the motility present. Nothing is more certain than that spermatozoa of merely moderate vitality seldom impregnate a female.

Oligospermia with deficient vitality of the spermatozoa is not infrequently found from constitutional causes. It can be easily demonstrated in animals that both low diet and conditions of life that produce a nervous and excitable state are attended by oligospermia. The same condition is not infrequent in men who have been overworked to the point of neurasthenia or even to a state of great nervous tire. Animal breeders consider it an established principle that a high protein diet in both sexes is essential to full fertility, and somewhat extensive experimental observations of my own support this conclusion so far as domestic fowl are concerned. General clinical impression leads me to the belief that it is probably true for the human race; but this subject has not been studied with sufficient accuracy to warrant a definite expression of opinion.

Moderately oligospermic men with semen that shows somewhat deficient vitality may probably be capable of impregnating highly fertile women (especially women whose genital passages are in a condition highly favorable to the existence of the spermatozoa), while, at the same time, they would be infertile to women whose genitals are moderately hostile to the spermatozoa but who would yet perhaps be not infertile to a male whose spermatozoa were abundant and of high vitality. Men who are oligospermic from constitutional cause, as well as those who are somewhat below the normal from poor development, may often be rendered fairly fertile or sometimes fully fertile by change of habit and stimulative treatment; and though relative infertility of both partners is always rather unfavorable, success may sometimes be attained even in these cases, especially if the sterility is not of long duration.

CASE 1 (Clinical Records No. 4270).—Man, aged 30; woman, aged 24; married ten months. Male: The frequency of spermatozoa was at the upper limit of the fourth class. The percentage of motility and the degree of vitality were of the second class. There were no infections nor local abnormalities. Female: The vaginal secretion was favorable; the cervix was anteflexed with pinhole os; the cervical mucus was highly tenacious, entangling all sperma-

tozoa as disclosed by postcoital examination; uterine drainage was poor, both ovaries being somewhat enlarged (at the operation they proved to be distended by retained follicles). Under change of habits of the male and moderate general stimulation by tonics, the semen improved to a low normal. It was believed that there was prospect of further improvement. An operative correction of the abnormalities of the female was then performed. Successful pregnancy followed within two months, an unusually prompt result.

Double gonorrheal epididymitis frequently produces absolute aspermia; or, when limited to the upper portion of the globus major, may produce oligospermia by cutting off the greater part, though not all, of the efferent ducts. Oligospermia, with normal motility and vitality, is not absolute sterility, but is of high importance because the percentage of destruction of spermatozoa during their passage through the genital canal of the female is so enormous that the possibility of impregnation by a semen which starts with a deficient number is always poor. When the genitals of the female partner are in a condition which is even moderately hostile to the spermatozoa, impregnation by such a semen becomes so unlikely as to be not even a probability. The only treatment of either oligospermia or aspermia due to the results of epididymitis is by resection and anastomosis of the vas deferens, an operation which is sometimes, though not invariably, successful.

Local conditions in the male genital tract that are quite insufficient to affect the general health in any noticeable degree may nevertheless be sufficient to produce a high degree of infertility. Strictly localized inflammation at some one spot in the urethra of specific, and sometimes of apparently nonspecific origin, may produce a urethral secretion which annuls or lessens the motility and vitality of the spermatozoa during ejaculation and before they reach the female. In such cases, appropriate local treatment is frequently sufficient to restore full fertility. An irritated condition of the seminal vesicles may produce the same effect, and is also frequently removable under treatment.

Congestion and swelling of the prostate may occur from many causes, very frequently from mere excess or imperfection in the marital relation. It habitually produces an excess of sticky prostatic mucus which entangles many, or in severe cases, all the spermatozoa and thus destroys their motility before they ever reach the female genitals. Such secretions may also show a biochemical hostility. These cases are again very hopeful under treatment.

CASE 2 (Clinical Records No. 4271).—A physician in the later thirties and a woman, aged 32, married seven years, both reported themselves as in unusually good health, which was borne out by appearances. The husband gave a negative past history, but said that marital coitus had been habitually excessive—six or seven times weekly. The wife was in no way abnormal, except a very sharp anteflexion with spasm of uterosacrals and small os. Admixture of a direct specimen of the semen with the vaginal and cervical secretions did not affect the spermatozoa unfavorably. The woman was probably fertile, though the probability of impregnation would be increased by a plastic on the cervix and anterior cervical attachments. A direct specimen of semen showed spermatozoa in abundance and of good motility, but from the first moment of observation the progress of the spermatozoa through the semen was slow. There was a very rapid occurrence of agglutination of the spermatozoa in clumps with entanglement in the mucus. At the end of three quarters of an hour of observation all the spermatozoa were entangled and incapable of progress even in the direct specimen. Local examination of the male revealed a large, soft prostate. The case was referred to Dr. Paul Thorndike, who confirmed this observation and also found a much enlarged vesicle. He recommended massage of the prostate and vesicle, and reexamination of the semen after treatment was recommended if pregnancy did not follow on the normal condition of the male, a plastic correction on the cervix.

These patients came from the Middle West for an opinion and were not seen again; but the case is selected as striking because the patient was a well trained and active physician who believed his own fertility to be beyond question, after repeated examination of his semen.

This and all the conditions mentioned have been seen, and most of them frequently in young males in first-rate general health.

The degree of fertility in a given male can never be decided without a full examination (as discussed later in the paper), and it is usually[1] unjustifiable to treat or, more especially, to operate on a woman for sterility without first ascertaining the condition of her husband. Many, if not most, male sterilities are curable.

AUTOINTOXICATIONS

That sluggish action of the colon with consequent chronic retention of feces may be of itself a sufficient cause of sterility in women has been shown by a not inconsiderable series of cases. It might at first sight appear possible that a direct influence on the uterus and ovaries by the production of pelvic congestion, was the way in which this cause operated; but the absence of significant congestion, as evidenced either by gross examination or by the microscopic characteristics of the secretions, and the presence of symptoms of chronic autointoxication in many of this series of cases seems to place them among the autointoxications rather than among those in which the sterility is due to local conditions.

CASE 3 (Clinical Records No. 4614).—The husband, aged 26, presented a negative history and physical examination. The wife, aged 22, considered herself in good health, but was somewhat pasty looking, and acknowledged lack of energy and resistance. They had been married ten months. The wife presented no symptoms except backache and some general abdominal lameness off and on, increasing during the last six months; some muscular rheumatism, some stiffness and occasional slight swelling in the hands. The general physical examination was negative (including urine), except on abdominal palpation evident fulness over the ascending and transverse colon. The bowels moved freely on alternate days; she was not in the habit of taking cathartics. Genital secretions were essentially normal. Pelvic examination was negative. Marital relations were normal. Postcoital examination was postponed until after treatment of constipation. During the following two weeks great quantities of old feces were unloaded under the use of liquid petrolatum, cathartics and irrigation. During this process the right hand became considerably swollen, stiff and painful though not very tender (owing to increase of autointoxication in process of unloading?) During the next two weeks there was some neuralgia in the left shoulder and arm; the right hand was better; the left hand was now a little swollen. Two weeks later, under continued catharsis and irrigation the hands became practically well; her color was now better; she was sleeping and eating better, and declared herself much less tired. Pelvic examination was now much more satisfactory. Both ovaries were probably a little full. She was given vaginal supposi-

1. An occasional exception to this principle may be found in cases in which the husband is inaccessible, and when an operation which would tend to promote fertility is also justified by a local symptomatology which is sufficient to affect the general health; for example, severe dysmenorrhea with sterility, both dependent on anteflexion of the cervix and enlarged ovaries.

tory of boroglycerid and ichthyol. She was advised to give continued attention to the bowels; to use vaginal suppositories of boroglycerid and ichthyol five days in succession, planning for coitus on the seventh day each week, for some months, before instituting any further treatment. One month later catamenia failed to appear. The patient is now well advanced in normal pregnancy.

This case is selected for quotation as peculiarly instructive from the almost complete absence of any genital peculiarities and from the absence of any other treatment than emptying of the bowels, except for the brief vaginal depletion. In most of the other cases of the retention series a greater or less alteration of the secretions was present and some direct local treatment was necessary; yet in all the retention of feces has seemed so much the predominating feature, both in diagnosis and in treatment, as to warrant the clinical conclusion that the sterilities were essentially due to this factor and terminated by its relief.

My experience has not furnished me with equally conclusive evidence that general autointoxication from distant lesions is by itself a sufficient cause for sterility, most of the cases presenting hostilities in the secretions which required considerable local treatment, and which might have been due to other causes than biochemical alterations from disturbed health due to autointoxication; but the cumulative presumption derived from numerous cases leads me to accord much practical weight to this probability and to consider it important to eliminate all such conditions in the management of cases of sterility. This conclusion is reinforced by the experience of both experimental and commercial animal breeders that both good general condition and proper diet are essential to fertility, in both sexes. Animal breeders are emphatic about the advantage of a glossy coat, a clear eye, animated temper, etc., in breeding animals. These correspond, of course, to good complexion, bright eye and the general results of conditions of good elimination in the human race.

EMPIRIC OPERATIONS

Sterility is a subject that has not been adequately studied, and the importance of the microscopic study of the conditions that determine it has not reached the mass of the profession or attracted the attention of more than a very few, even among specialists. An unfortunate result of this is that the specialist in sterility sees many cases that have been complicated by previous unsuccessful operations, usually on women. When the organs of a sterile woman show no gross abnormality she is usually advised to try some one of the time-honored minor expedients and is dismissed with that advice; but when some gross and easily detectable abnormality is found she is too frequently subjected to an operation on the mere chance that that abnormality may be causative to the sterility. If performed in the absence of an exact knowledge of the causes and conditions that are really involved in the individual sterility, such an operation is naturally not adapted to their correction; and while it may occasionally yield results, it is worse than wasted in the other cases. Especially prominent among these useless operations are those which are done for the relief of retroversion without recognition of one of the functional derangements of the ovaries which imply nonovulation, or of a preexisting anteflexion from the existence of short anterior attachments of the cervix.

The futility and injustice of the performance of an abdominal operation for sterility without attention to the needs of nonovulating ovaries needs no mention, yet it is a very common mistake.

The performance of a suspension, whether by seroserous stitch or by shortening of the ligaments in the face of a forward fixation of the cervix, means necessarily the restoration of a flexion that decreases uterine drainage and thereby increases the conditions productive of sterility; the uterine tension so produced moreover eventually destroys even the anatomic result in a large proportion of cases.

Case 4 (Clinical Records No. 4611).—A man, aged 34, and a woman, aged 27, had been married a little less than three years. When one year married the wife was referred to an excellent surgeon of prominence in a large city, on account of the nonappearance of conception. She was free from any symptoms of ill health. The surgeon found the uterus in retroversion, but found nothing else. He dilated and curetted, and performed a suspension operation. The couple were seen a little less than two years later. The vaginal secretion was overacid and bacillary. On postcoital examination the spermatozoa found in the vagina were all still. The cervical secretion contained no spermatozoa and was profuse, tenacious and turbid, showing a high leukocytosis and constituting by itself an efficient obstacle to impregnation. The uterus was again in straight retroversion; the anterior attachments of the cervix were organically short, the uterosacrals in spasm. Both ovaries were full and slightly enlarged, the catamenial enlargement persisting during an undue portion of the month and never wholly subsiding. The husband had a negative sexual history, and his general physical examination was negative except that he was living a very confined office life, and was in soft condition. He had been much given to athletics until a few years earlier. His prostate was soft and swollen, the left side being markedly larger. Examination of a direct specimen of semen revealed oligospermia, morphologically well formed, but mostly still and the remainder in feeble motion, most of them entangled by their tails in sticky mucus. There was an extreme excess of crystallized elements in the semen, and it was believed to be hostile biochemically as well as mechanically. Case 4 is recent,[2] but it is selected for citation because it illustrates so many points. The husband was functionally sterile. The retroversion created no symptoms either before the operation or after its occurrence; such a retroversion has little influence on fertility and is unimportant. The fixation of the cervix made it improbable that a mere suspension would effect any improvement in the condition of the uterus. The vaginal secretion was slightly hostile, the cervical was very hostile, and in the anatomic condition of the cervix could hardly be otherwise. The ovaries were functionally deranged. The woman was subjected to an abdominal operation for a harmless retroversion, the ovaries were left untouched, and except for the institution of a dilatation and curettage, which in such an anatomic position of the cervix is useless, nothing else was done, yet the operator is a well known and able man.

Cases almost as flagrant are frequently seen by the expert in sterility. To the credit of the profession, it may be said that they have become rare in most other lines.

Unnecessary and unsuccessful curettings are another extremely frequent element in the empiric treatment of sterility. Many operators seem to believe that if a routine examination discloses no evident abnormality in the female of a sterile mating, it is always fair to curet her. Dilatation and curettage delicately performed, in connection with plastics on the cervix, form

2. Both partners are now under minor treatment. If the man can be rendered fertile, the woman will need another operation.

an intrinsic part of many operations for sterility but when done by themselves and especially when done on a hit and miss principle, they are seldom efficacious and not infrequently harmful. When less well done and when done without correction of the shape of an underdeveloped cervix, they very often produce trauma and scar tissue about the angle of flexion which distinctly and by itself decreases the prospect of pregnancy at any subsequent time.

The use of stem pessaries is a far too frequent and very harmful expedient in the treatment of sterility. There is no question that the use of the stem is occasionally followed by pregnancy in previously sterile women. Some of the practitioners who use them have claimed as high as 25 per cent. success, though usually in a small series of cases, and from 10 to 15 per cent. is generally credited to this procedure; but all or nearly all of the unrelieved majority are rendered permanently and hopelessly sterile by the results of the stem. When effectively used, the stem produces improved uterine drainage; but it effects this by the production of a pressure necrosis in the portion of the canal where it lies. The few pregnancies that follow its use occur during the comparatively few months in which patency remains; but the mucous membrane has been destroyed, and unless pregnancy occurs immediately, recontraction and decreased drainage again set in. In my own experience, I have never had a success by any method after a stem pessary has been unsuccessfully used. I have seen not a few salpingitides which apparently were referable to the use of the stem.

It is well known that neither uterine fibroids nor even ovarian cystomas are entirely preventive of pregnancy, though it is comparatively rare in the presence of these neoplasms. This is evidently due to the fact that fibroids do not necessarily encroach on the uterine canal and that simple cysts of the ovary do not under certain conditions produce the intra-ovarian tensions which prevent ovulation. When such neoplasms are combined with the secretional hostilities or with non-ovulating ovaries, their possessors are sterile. When the neoplasms are removed by operations which also are directed to the removal of the conditions of sterility, the cases form a class in which the prognosis is especially favorable; but the removal of neoplasms from sterile women without attention to the real causes of the sterility naturally yields only a small percentage of results, and must then too often be followed by plastic corrections which might just as well have been performed at the same time. A single operation with a successful result is always preferable to an operation that is followed by a disappointment, even though a second operation is afterward successful.

One more class of failures remains to be discussed. It is a universally accepted principle that no chain is stronger than its weakest link; but the equally clear fact that no tube is more patent than its narrowest part seems to have attracted less attention, though it will be assented to the moment it is set forth. This principle is again as true of physiologic as of mere mechanical patency, and it is eminently true of the genital passages in many sterile individuals. A localized condition (usually inflammatory) which is either mechanically or biochemically obstructive to the spermatozoa may certainly be so much localized as to exert no special effect on the general health, and yet render the canal as impervious to impregnation as though such a condition extended its entire length and caused an extreme symptomatology. Male hostility of this class has already been discussed. Biochemical vaginal hostility of bacterial origin, mechanical cervical hostility from inspissated or sticky mucus, tubal hostilities without marked enlargement of the tubes, and ovaries which are nonovulating from retention of the follicles are frequent causes of sterility which seldom produce ill health or even gross lesions. The diagnosis of these conditions can be made only by the microscope. These cases are usually pronounced to be entirely normal, the patients are often assured that they are not sterile in spite of the fact that they do not produce children. These cases belong properly to the expert in sterility and are among the most satisfactory cases that are sent to him. They are cases that the general practitioner, and even the gynecologist who has not made a special study of sterility, can hardly be expected to elucidate. They are frequently complicated by the presence of the stigmata of genital underdevelopment; but, unless this is very marked fertility can usually be restored. They form an important and very hopeful class, but their prognosis is always better if treatment is undertaken early in married life than when the sterility has been long continued.

CASE 5 (Clinical Records No. 4167).—A man, aged 35, and a woman, aged 30, had been six years married. The wife presented no symptoms except occasional sensations in the right lower quadrant when fatigued. There were extreme anteflexion of cervix with retracted anterior attachments of the cervix, pinhole os, rather small and slender uterus in retroversion, and both ovaries palpable and probably slightly enlarged. The vaginal secretion was overacid and white. Smears showed a preponderatingly bacillary flora. There was evident biochemical hostility. The cervical secretion was quite normal. Postcoital examination revealed an abundance of spermatozoa in the vagina, all dead after an hour in situ. A cervical specimen showed abundant spermatozoa of good motility. It was presumably a case of moderate vaginal hostility and of ovarian sterility. The anterior attachments of the cervix were released; the os was enlarged by a small bilateral Pozzi operation. The abdomen was opened. The right ovary contained a small calcified corpus; it was resected; the remainder of the ovary was enlarged, mainly by edema, and was scarified. The left ovary contained a flaccid corpus cyst, the size of an English walnut, probably hardly palpable on examination; it was resected. The uterus and ovaries were suspended. The appendix was removed. There was good convalescence and considerable gain in the general condition. During the next six months occasional depletion was carried out with ichthyol and boroglycerid. During the next three months repeated smears showed favorable coccal vaginal flora with only normal acidity. At the end of this time a second postcoital examination disclosed normal motility of spermatozoa in the vagina. Pregnancy occurred immediately after this, and the child was born at term eighteen months after operation.

The general characteristics of this class of cases are an absence of symptoms, except sometimes dysmenorrhea, marked anteflexion of the cervix due to a congenitally short Goffe's fascia and other anterior attachments, cervix small with small os, the fundus of the uterus not large, and the intermediate portion of the organ slender. There is poor drainage from the uterus, and the cervical secretion tends to be inspissated and sticky. Except in the dysmenorrheic cases, these conditions make little trouble during maidenhood; and in those in which pregnancy occurs soon after marriage, the development of the uterus is completed during pregnancy. When pregnancy does not follow

promptly after marriage, a very acid, highly bacillary, vaginal secretion usually appears, and sterility is established. At this early stage, and if repeated examinations of the ovaries show them to be thoroughly normal throughout the menstrual month, the cervical plastics alone, or in combination with vaginal disinfection and autogenous vaccinations from the bacillary flora, are frequently successful. If such a sterility remains long unrelieved, functional derangement of the ovaries usually ensues, and after persistent disturbance of the ovaries has once followed, a conservative operation on them must be combined with the other procedures if success is to be hoped for. Pregnancy seldom occurs in the first six months after any of these operations. It is most common in the second or third six months, and a considerable percentage of successes do not appear until the fourth six months or perhaps shortly after. Minor treatment and the autogenous vaccinations are often of much importance as after-treatment.

This class of cases varies greatly in the degree to which the several factors are present. Success in treatment rests largely on careful analysis of their relative importance and the adaptation of the operative or other treatment thereto; but these sterilities form a large, interesting and very hopeful class.

EXAMINATION, DIAGNOSIS AND PROGNOSIS

The many possibilities, on one side or the other, which are involved in the sterility of a given mating form so complicated a subject that the decision as to which of the many possibilities form the effective cause or causes in a given case, and the formation of a prognosis of what can be expected from treatment, can usually be reached only after all have been considered and examined for.

The examination of a couple should begin with a careful general life history of both, which should be especially directed toward detecting the existence of autointoxications or of an involvement of the testicles or ovaries in past general infections.[3]

The general history should, if necessary, be followed by a general medical physical examination.

A careful sexual history of both partners should be taken. In the case of the man it should include past and present sexual habits, degree of desire, and infections; in the case of the woman, a chronological inquiry into the events of puberty, any changes in the catamenial history, and the phenomena of the marital relation, especially when first assumed.

The local physical examination of the male should include the exclusion of any abnormalities of the penis, and careful palpation of the testicles, of the prostatic urethra, of the prostate and vesicles. When there is a history of past infection or any tenderness on palpation of the urethra, a urethral examination should be added.

In the pelvic examination of the woman, the usual visual and bimanual examination should be followed by a rectovagino-abdominal palpation, which is made with the forefinger in the vagina, the second finger in the rectum, and the other hand on the abdomen. The superior degree in which the shape and relation of the uterine body, and the conditions of the ovaries are determined by this examination can be appreciated only by those who have trained themselves to it. It is essential to the determination of the existence of spasms in the so-called uterine ligaments (unstriped muscles), a very important item in the examination for sterility; and the functional derangements of the ovaries can hardly be studied successfully in any other way. These examinations should usually be repeated under anesthesia. The use of primary anesthesia by gas-oxygen is usually quite sufficient for this purpose, and is so lacking in disturbing or unpleasant features as to be quite unobjectionable.

These examinations should include not only the usual search for abnormalities but a complete review of every part of the genital organs, including size, shape, degree of development, tenderness, congestion, localized inflammatory conditions and spasms. The study of the lesser degrees of functional alteration of the ovaries may sometimes advantageously include repetitions of the rectovagino-abdominal examination throughout the varying phases of the menstrual month.

Finally, the secretions of both sexes should be submitted to a microscopic examination. Smears should first be made from both the vaginal and the cervical secretions, and the chemical reaction and gross appearances of both should be recorded. The smears should be stained, and their study should include the bacteriology of the vagina and the amount and condition of the contained epithelial cells, with especial reference to the degree of destruction of their cytoplasm. In the cervical secretion the important points are the amount and condition of the epithelial cells, the degree and quality of the leukocytosis, and the thickness and tenacity of the mucus.

It is usually in practice most convenient that a postcoital examination of the woman should be the next step, because if the examination of the vaginal pool shows an abundant number of spermatozoa with a high percentage of first-rate progressive motility, a direct microscopic examination of the male may be dispensed with; but it is rarely conclusive to this effect unless made within the first hour after coitus.

The mucus of the postcoital flow as it escapes from the os should next be searched. Specimens taken by syringe or otherwise from the lower and upper cervix should be examined, and the behavior of the spermatozoa within them should be carefully noted. In a small proportion of cases an examination of the corporeal secretion is desirable; but it is difficult to perform this examination without contamination from the mucus of the cervix, and it is not altogether innocuous. It should be reserved for cases in which the result of the previous examinations seems to render it especially desirable.

If the spermatozoa as found in the pool are not first-rate, an examination of the semen obtained directly from the male and without admixture with the secretions of the female is essential to a determination of his fertility, and experience has shown conclusively that no male should be condemned without the examination of a specimen which has been obtained directly from his urethra by any one of the three possible methods within a few minutes of the examination. The spermatozoa are exceedingly sensitive to chilling, desiccation and very slight overheating. Cases have been seen repeatedly in which the male has appeared sterile after the examination of a specimen that had been ejaculated as short a time as half an hour previously and subjected to transportation, but in which the examination of a fresh specimen with duration tests

3. It is well known that mumps frequently affects the testicles and less frequently and obviously the ovaries. These involvements also occur, though much less frequently, during typhoid. There is also some evidence to show that they occasionally occur in scarlatina, and perhaps in some other infections, though this must be regarded as unproved.

under proper laboratory conditions showed conclusively that the method of collection and transmission had involved what may be called laboratory errors which were wholly responsible for the absence or imperfection of motility.

After a full consideration of the history, local and general, and of the local, general and microscopic examinations in their relations to each other in both sexes, a diagnosis of cause, and usually, a fairly accurate prognosis of the prospect both with and without treatment, may be obtained; but the conditions involved are so complex that opinions given without such an analysis are usually little better than guesses.

An accurate prognosis is especially important in sterility, since the institution of treatment, and more especially of operative treatment, in cases in which it is judged appropriate, involves a decision that is different in kind from that which is concerned with the relief of ill health.

When an abnormal condition involves a distressing symptomatology and, more especially, when it involves danger to life, it is of course proper for the surgeon to urge on his patient the importance of treatment, whether minor or operative; but the institution of treatment, with its discomforts and expenses, for the relief of sterility alone is one which is essentially at the choice of the patients and which is essentially dependent on the degree of their desire for children in relation to the degree of improvement in their prospects which may be expected from treatment. Their decision must be largely dependent on the prognosis that is given to them, and every effort should be made to render it accurate.

The degree of success that may be expected from adequate treatment of sterilities in general is a question that is frequently asked by the profession; but, although experience shows that a fairly accurate prognosis may usually be obtained in a given case, a general statement is as yet impossible. Repeated attempt at statistical study of all the cases seen has been made, but has been unsatisfactory owing to the character of the subject. There are so many possible causative elements in sterility; the presence of several such conditions within the same case is so common; the prognosis in individual cases varies so widely in accordance with the combinations so obtained, and varies so much again with the duration of the sterilities, the ages of the female patients and often with the effects of previous treatment that they have undergone that an adequate classification of the cases for statistical analysis would require the use of many thousands of instances, and such are not now available. Statistical conclusions drawn without classification would be misleading, while those drawn from cases selected as favorable would be nearly worthless.

Cases that are successful under minor measures are among the most gratifying that are seen; but the causes that effect sterility in this class of cases are not only so variable, but often grade into each other by such indefinite degrees that their classification for adequate analysis by statistical methods has proved to be, for the present, at all events, a hopeless task. The only general statement about results that is so far in any degree worth putting into figures was reached by treating as a whole the operative cases that have been seen since present methods have been used and in which two years have elapsed since operation. In this series, seventy consecutive cases yielded a general result of 42 per cent of successes; but in fairness it must be stated that this collection included a considerable proportion of cases in which the couple decided on an operation after having been given a doubtful or poor prognosis for success (in some cases as low as a 10 per cent. chance), in view of the fact that they were assured that the prognosis was hopeless without it, and because they were willing to take even the smallest chance.

It may fairly be said that in young persons without venereal history or serious congenital defects, and with a sterility of but a few years' standing, the prospect of obtaining pregnancy under treatment is almost always very good. In selected cases it is as high as from 75 to 80 per cent.; but in less favorable cases it ranges all the way downward to those in which it is from one cause or another absolutely hopeless. Each mating must, then, be considered by itself and it is manifest that no general statement of value can be made.

321 Dartmouth Street.

STONE IN THE KIDNEY AND URETER

FROM THE STANDPOINT OF THE CLINICAL SURGEON *

A. J. OCHSNER, M.D.
CHICAGO

It would seem proper for me in my part of this discussion to avoid a repetition of what is contained in most of the special works as well as in the various monographs on stone of the kidney and ureter, which are so complete and exhaustive that, in connection with the recent papers by Braasch,[1] Eisendrath,[2] Young,[3], Cabot,[4] Eliot,[5] Merritt[6] and others, the field has been splendidly covered. It would seem well worth while, however, for me to consider stone of the kidney and ureter from the standpoint of the clinical surgeon, especially because I have been constantly active in the treatment of these cases since they have been looked on as surgical.

I assisted Prof. Charles T. Parkes[7] in 1887 in the diagnosis and operation of his first case, which was one of the earliest cases treated by operation in this country.

At that time, the characteristic symptoms, which are now generally accepted, were discussed incidentally in textbooks. Morrison had written on the subject and reported cases. Israel was beginning the work in this department which has since brought him international fame, and Jacobson had given some attention to the surgical importance of this subject which had been mentioned by various surgeons in connection with occasional clinical observations.

The stone in the first case of my experience, mentioned above, was the shape and size of a robin's egg,

* Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Braasch, W. F.: Boston M. & S. J. **178:** 292 (Feb. 28) 1918; Lithiasis with Bilateral Renal Involvement, Minnesota Med. **1:** 252 (July) 1918.
2. Eisendrath, D. N.: The Diagnosis of Ureteral Calculi, Surg., Gynec. & Obst. **27:** 461-468 (Nov.) 1918.
3. Young, E. L., Jr.: Clinical Diagnosis of Lithiasis of the Upper Urinary Tract, J. A. M. A. **69:** 1490 (Nov. 3) 1917.
4. Cabot, Hugh: Errors in Diagnosis of Renal and Ureteral Calculus, Surg., Gynec. & Obst. **21:** 403, 1915; Stone in Kidney and Ureter, a Critical Review of 157 cases, J. A. M. A. **65:** 1233 (Oct. 9) 1915.
5. Eliot, E., Jr.: New York M. J., Dec. 1, 1906.
6. Merritt, E. P.: A Consideration of Ureteral Stones, Surg., Gynec. & Obst. **27:** 538 (Nov.) 1918.
7. Parkes, C. T.: Clinical Lectures, Chicago.

was perfectly smooth and fitted like a valve into the entrance of the ureter, accounting perfectly for the pain and symptoms of obstruction and for the thickened walls of the pelvis which made location of the stone by palpation impossible. The stone was located by puncturing with a fine sewing needle, which was generally recommended at that time, but which has since been discarded because it leads frequently to the missing of small stones.

My next observation of especial importance occurred in 1888, when I was directed by my chief to keep a colleague under the influence of chloroform at intervals from 10 a. m. to 8 p. m. while a renal calculus was passing through the ureter. For several years, this physician had passed from one to three renal calculi annually. Morphin had no effect on him and the pain was unbearable, so the use of anesthesia was our only hope of giving relief.

A few days later, before this patient had time to produce another calculus, we met another one of Professor Parkes' patients who had suffered from recurrent renal colic, a manufacturer of steam boilers. On asking him whether he had experienced any attacks recently, he stated that he was definitely through with renal colic, and suggested that if the doctors used their intelligence as actively in their profession as boiler manufacturers had to in their business, no one would ever have to experience a second attack unless he had more than one stone in his kidney to begin with. He stated that when his customers complained of their boilers filling up with lime in the form of scales, he advised them to use rain water, and this ended the trouble; so on the same principle he drank freely of distilled water, and had been free from a recurrence of kidney stone and renal colic.

I immediately put our colleague on this treatment, which he continued for twenty-nine years, never having another attack. He died of cerebral hemorrhage at the age of 74.

Since that time, I have made use of this method in an enormous number of cases, always with the same result; and the practice has been followed by many practitioners who have visited my clinic and others who have read about this method of treatment. I have no doubt that the method must have been used before the boiler maker discovered it, but earlier reference to it has escaped my attention, except that the water from certain springs which is almost as free from lime as is distilled water has been used as a prophylactic against recurrence of renal colic from time immemorial, while regions in which the drinking water is loaded with lime salts are notorious for the frequency of renal calculi, as cited by O. S. Fowler,[8] for instance, in India.

A number of observations similar to the following have proved the importance of this treatment:

Case 1.—A farmer, aged 34, from the limestone region of Wisconsin, came to my clinic suffering from recurrent renal colic twenty-seven years ago. During former attacks, he had obtained relief spontaneously, but this attack seemed more severe. The stone passed on the second day under treatment with morphin and atropin hypodermically, and 2 ounces of glycerin and large quantities of distilled water, all of which were repeated after twenty-four hours. He obtained a distilling apparatus and drank only distilled water for twelve years without having any further attacks until he drank well water for six months, being too much occupied while building a new house to take the distilled water. This brought on another attack, during which he passed a calculus 1.5 cm. in length. He immediately returned to the use of distilled water and has now been free from attacks for fifteen years.

I have encountered a number of similar cases.

There is a marked difference in opinion as regards the proportion of cases in which renal and ureteral stones will pass spontaneously, some placing the percentage as high as 90, while others place it as low as 10 per cent. (Merritt,[6] Braasch[1]).

This depends, of course, very largely on the class of cases treated. In our clinic the patients who come from the immediate city or vicinity usually have stones that pass under the treatment mentioned above. In all probability, the stones that passed following this treatment would have passed spontaneously before the patients could have traveled a long distance so that only those patients come from a distance whose stones cannot pass for one reason or another, and therefore clinics which receive their patients almost exclusively from long distances must have a far larger percentage of cases requiring operation than clinics in municipal hospitals.

My next case of especial interest, which I saw in 1892, demonstrated a fact which is now mentioned in most articles, and in practically all textbooks treating on this subject:

Case 2.—A powerful, healthy appearing man, weighing over 200 pounds, about a week previously had begun to suffer from pain in the region of the right kidney which had increased constantly, no relief being obtained from the hypodermic use of morphin. It was thought that the typical uremic convulsions to which he succumbed almost immediately after I saw him were due to the pain, which was confined to the region of the right kidney.

The physician in charge felt certain that the patient had not previously suffered from nephritis and could not account for the uremic convulsions. The necropsy revealed absence of the left kidney. The pelvis of the right kidney contained a pear shaped stone, 2.5 cm. long, with the portion corresponding to the stem inserted in the upper end of the ureter. A pyelotomy during the early stage of the attack would, of course, have cured the patient as has been demonstrated in many cases since that time.

Case 3.—A woman had a sinus, leading to a nephritic abscess of the right kidney from which a stone had previously been removed, which refused to heal under treatment. In the meantime, the fistula had drained much urine and pus, while the amount of urine secreted by the other kidney, although it remained normal in quality, decreased constantly until less than 100 c.c. were voided daily. After keeping the patient under observation for a sufficient period, and finding it impossible to pass a ureteral catheter into the pelvis of the right kidney, we decided to remove the organ because we attributed her failing health to absorption of septic material, and at the rate she was losing strength, we felt certain that she could not last very long.

Within two days after the operation, the urine passed from the bladder increased markedly, and within two weeks it increased to 800 c.c. This showed in a very marked degree the fact that the remaining kidney is stimulated to greater activity on the removal of the diseased organ, the justification of which has now been thoroughly established.

The next case marks the beginning of a change in the practice in our clinic:

Case 4.—A woman, aged 60, emaciated and septic in appearance, with typical symptoms of double pyonephrosis with multiple calculi, was treated by drainage of the left kidney and the removal of a number of stones; a month

8. Fowler, O. S.: Ureteral Obstruction Causing Urinary Stasis, a New Etiology in Kidney-Stones with a New Method of Nephropexy to Secure Ideal Natural Drainage, J. A. M. A. 69: 367 (Jan. 31) 1914.

later the right kidney was treated in the same manner. Both kidneys were tuberculous. The patient was put under hygienic and dietetic conditions, but lost in weight and strength very slowly but gradually. Formerly, no patients of this type had ever recovered in our experience, although we had a series of recoveries in cases in which we had removed one tuberculous kidney even after it had been drained for a time. In this case, both kidneys were in such bad condition that it seemed out of the question to remove one. We consequently started to fill the sinuses and the pelvis with a paste of 20 per cent. bismuth subnitrate in petrolatum, repeating the treatment once a week. The patient showed improvement within a few weeks, increased in weight and strength rapidly, and made a complete recovery.

Since that time, we have invariably treated sinuses leading to tuberculous kidneys with Beck's bismuth paste with a fair number of recoveries.

During the fifteen years ending Jan. 1, 1919, I have treated 146 cases of kidney and ureteral stone in my clinic at the Augustana Hospital.

TREATMENT

In case the calculus lies in the pelvis without several branches into the calices, we have found pyelotomy most satisfactory, following the advice of J. B. Murphy,[9] whenever possible, of first splitting the upper end of the ureter longitudinally and continuing the incision into the pelvis.

In branching stones, we have clamped the pedicle of the kidney lightly, split the cortex longitudinally just behind its midline, removed the stone, and placed heavy catgut sutures through the kidney, tied just tightly enough to bring the surfaces together, and then released the clamp. In pyelotomy, only in cases in which the edges of the pelvis failed to fall together evenly, fine catgut sutures were used. In either case we drained the wound with a strand of gauze and a cigaret drain.

Ureteral stones which could not be delivered through the bladder without traumatizing the ureter, we have removed through an abdominal incision in the linea semilunaris carrying a small rubber drain, a narrow strip of gauze and a cigaret drain through the lower angle of the wound down to the incision in the ureter. In none of these cases have we applied sutures. Only in one case have I removed a stone through a vaginal incision.

CONCLUSIONS

1. The size of the pelvic stone will usually determine the possibility of its passing spontaneously.

2. In the ureter, the primary stone, if it gets started, will usually pass. Secondary stones may be stopped by cicatricial contractions which may have been caused at some point by injuries due to the passage of one or more previous stones.

3. A large proportion of stones of moderate size will pass spontaneously or after dilatation of the ureter with bougies, the use of oil of glycerin injections or one of the various methods of dilatation, of which the one perfected by Lespinasse[10] seems most effective.

4. At times, simply starting the stone with a bougie will suffice.

5. In patients suffering from acute renal colic, the use of morphin and atropin hypodermically followed by the ingestion of 2 ounce doses of glycerin with large quantities of distilled water has seemed to be of value in aiding the passage of stones spontaneously, especially when the patient was immersed in a very hot bath.

6. The prophylactic measure of taking large quantities of distilled water seems to be effective in preventing recurrences.

7. Sinuses remaining after pyelotomy or nephrotomy will frequently heal after injection with Beck's bismuth paste.

8. The clinician who is alert for the discovery of renal or ureteral stone, who takes into consideration the history and physical findings, will rarely miss a correct diagnosis provided he confirms his diagnosis (*a*) by careful urine examination; (*b*) by roentgenographic examination with intensified shadows if necessary; (*c*) by the introduction of ureteral shadow sounds; (*d*) by pyelography in doubtful cases, and provided he is willing to consider all points as a whole and will place no weight on negative findings by any single one of the various methods employed.

DIAGNOSIS

The most important element in the diagnosis is a carefully written history taken by the surgeon himself who is thoroughly familiar with the clinical courses of these cases, because the careful weighing of all the points elicited is exceedingly valuable, while each individual element in the history may be of but slight value.

This accounts for the constancy with which the older clinical surgeons have their diagnosis confirmed by the roentgenographic and other laboratory findings, and also for the fact that we find in the literature so many of the younger surgeons and diagnosticians who lay little value on the history.

It is certain, however, that wide clinical experience must confirm the conclusion arrived at by Young[3] after his extensive studies, that "no single piece of evidence or combination of evidence is sufficient to make an absolute diagnosis."

Next in importance is the roentgenographic examination. The plate should show a distinct picture of the outline of the kidney to be dependable in case of renal calculus.

In case the shadow is not sufficiently distinct, the latter should be intensified.

In case there is doubt concerning the stone's being in the ureter, a shadowgraph catheter should be introduced.

Of course the bowels should be thoroughly emptied before the roentgen ray is employed, and both kidneys should be examined, because, according to Braasch,[1] in bilateral stone the pain is unilateral in 64 per cent. of the cases. Guyon pointed out the fact many years ago that a stone in one kidney may give rise to pain on the opposite side exclusively, a condition he termed "renorenal reflex."

Cystoscopic examination is especially useful in differentiating between calculus and tuberculosis. The same thing is true of microscopic examination of stained urinary sediment and inoculation of guinea-pigs for tuberculosis.

Lucas,[11] in one of the early works in this field, invented an interesting test for ureteral calculus which has not received due attention. The thigh is held in a flexed position resulting in contraction of the

9. Murphy, J. B.: Surgical Yearbook, 1907.
10. Lespinasse, V. D.: Surg., Gynec. & Obst. **26**: 631 (June) 1918.
11. Lucas, R. C.: Lancet, April 25, 1903.

iliacus muscle, which is relaxed suddenly, jarring the ureter containing the stone and causing acute pain. He also gives the following symptoms not usually mentioned: Patients with calculi often have a tendency to micturate frequently during the daytime, while at night they are not disturbed.

In case of obstruction of the pelvis or ureter of the only remaining kidney, the patient in making frequent unsuccessful attempts to micturate develops headache, vomiting and uremia.

He gives the following points for differential diagnosis between tuberculosis and calculus:

Hematuria without pain appears early in tuberculosis; hematuria with pain is constant in calculus.

Pyuria without pain appears early in tuberculosis; pyuria with pain appears late in calculus.

Pus is present in tuberculosis in excessive amount; in calculus it is minimal in amount.

Pain in tuberculosis is diffuse, dull, constant; in calculus it is definite, sharp and intermittent.

Chills in tuberculosis are common; in calculus they are rare.

There is rise of temperature in tuberculosis especially in the afternoon; in calculus it is rare.

Tubercle bacilli in tuberculosis are sometimes present; in calculus they are absent.

The ureter is thickened in tuberculosis, sometimes it is palpable; in calculus it is not palpable.

The remaining conditions to be considered in making a differential diagnosis are movable kidney, oxaluria, acute granular nephritis, papilloma in the pelvis, tumor, gallstones, tuberculosis of the spine, appendicitis, ectopic gestation, sciatica and lumbago, stone in the opposite kidney, seminal vesiculitis, pyosalpinx, and gastric or duodenal ulcer. Phleboliths and calcified tuberculous lymph nodes may be mistaken for stones when one is attempting a differential diagnosis.[12]

ABSTRACT OF DISCUSSION

DR. CHARLES HARPSTER, Toledo, Ohio: I watched the work of Professors Israel and Nitze for about two years, and was much impressed by what they said regarding the finality of any test. Regarding the use of the ureteral catheter and the refinements of urologic diagnosis, I will cite one or two cases to illustrate their great usefulness. In cases of bilateral ureteral calculi, with anuria of from two to five days' duration and the roentgenogram showing stones in both ureters, on which kidney are we going to operate? In a case of anuria of five days' duration, with stones showing in the roentgenograms, we were able to pass a number four catheter by the stones on each side. On one side no urine was coming at all, yet the clinical symptoms seemed to point to that kidney as the one that was functioning. If we had operated on that kidney the man would have died. By being able to pass the small catheter on both sides, we cleared up the diagnosis, operated on the right kidney and saved the man's life. Regarding the length of time a person with anuria and stones on both sides may live, one man who refused operation, on whom we had previously done a prostatectomy, lived about twelve days. Of course, we appreciate the worth of clinical evidence, but we should in all cases corroborate our findings by cystoscopy, roentgen ray and all other diagnostic refinements.

DR. V. D. LESPINASSE, Chicago: The symptoms of stone were worked out in the early days of medical practice, as urinary stone is an obvious lesion and these symptoms were called stone symptoms. Stone symptoms are merely symptoms of acute ureteral obstruction, and anything that will obstruct the ureter will cause the same group of symptoms as a stone. So that we must have more than symptoms to make a diagnosis of ureteral stone. Blood and pus in the urine, of course, help a great deal, but most of us nowadays want something objective, something definite that we not only can see ourselves but demonstrate to anybody else, and we turn to the roentgen ray. The roentgen ray very often fails, particularly in the case of the smaller stones in the ureter, and particularly in certain heavy individuals. The point that I want to make is in regard to the diagnosis of these stones that are negative to the roentgen ray. What happens in the urinary tract when a stone is present? There is ureteral dilatation, dilatation of the pelvis of the kidney and its calices, and these facts can be used to diagnose a stone in the ureter, and should be used. A pyelogram and a ureterogram should be made. Obstruction of the catheter at a certain definite point confirms the diagnosis. These points of pelvic and ureteral dilatation have helped me make a diagnosis in several instances where the stone was negative to the roentgen ray and operation produced the stone.

DR. A. J. CROWELL, Charlotte, N. C.: Three points in connection with Dr. Ochsner's paper I would like to discuss: first, the causes of recurrences of stone in the kidney; second, the frequency with which we have recurrence, and third, a plan to prevent recurrence. Dr. Ochsner believes he has clinical evidence that kidney stones are produced by drinking certain mineral water. How any mineral water can be a direct or predisposing cause to stone formation, I do not know. It may act as an irritant, lowering the kidneys' resisting power and make infection more liable. In my opinion, clot, following hemorrhage, or débris as a result of infection, are the principal causes of stone formation. These act as a nucleus on which the salts of the urine are deposited and to prevent stone formation it is necessary to get rid of these predisposing causes. It occurred to me a few months ago, while studying a case of double nephrolithiasis with infection, that, theoretically, to prevent reformation I should first get rid of the infection. With this end in view I irrigated the kidney pelvis with silver nitrate solutions every third day, beginning with 0.5 per cent. and increasing 0.5 per cent. each treatment, keeping this up until the infection subsides. The stones are removed simultaneously by pyelotomy. The wounds heal by first intention. In ten days I resume pelvic lavage with silver nitrate and physiologic sodium chlorid solutions. This is kept up until no evidence of infection is found. I am now treating several cases in this way. I feel that many recurrences can be prevented by faithfully following this plan of treatment. It was new to me and in looking up the literature on the subject I found that no one seemed to have thought of it as a routine plan of procedure to prevent stone reformation. It has been estimated by different operators, that stones have recurred in from 10 to 40 per cent. of the cases. I heard Mr. Freyer, while removing a stone from the kidney of a patient, say that unless the stone was producing considerable clinical symptoms, "leave them alone since we have recurrences in practically every case."

DR. GUY L. HUNNER, Baltimore: Ureteral stricture is the chief cause of most stones in the ureter. Not only that, but stones forming in the ureter may so dilate the ureter above the stricture that the stone will float up into the kidney, where it will, perhaps, get larger and remain, or get larger and start down again and then get obstructed in some other point. The chief point of importance about this is that in operating on any stone in the kidney or upper ureter, we

12. In addition to the references already given, the following will be found of interest:

Busby, Archibald: The Value of Roentgenological Examinations, in Johnson, A. B., Operative Therapeusis, New York, D. Appleton & Co., 1915.
Doyen, E.: Traité de thérapie chirurgicale et de technique opératoire, **5**: 198, 1913.
Luys, G.: Traité de cystoscopie, Paris, 1918.
Mayo, W. J.: The Removal of Stones from the Kidney, Surg., Gynec. & Obst. **24**: 1-8 (Jan.) 1917.
Tenney, Benjamin: Renal and Ureteral Stones, Boston M. & S. J. **178**: 731 (May 30) 1918.
Treves, Frederick: Operative Surgery, 1892.
Uteau, R.: Stone at the Level of the Kidney and Pelvis, Progrès méd. **33**: 189 (June 1) 1918.
Williams, B. G. R.: The Formation of Urinary Calculi, New York M. J. **102**: 609, 1915.
White, Sinclair: British M. J. **1**: 1-4 (Jan. 8) 1910.

should pass the graduated or the dilating bougie from above downward, in order to dilate any possible stricture in the lower end of the ureter. I am a great believer in Dr. Ochsner's method of using these pure waters for these cases that have shown a tendency to reformation of stone.

DR. ALBERT J. OCHSNER, Chicago: I am very glad, indeed, that Dr. Hunner and Dr. Crowell brought out these points, because there is no doubt but what infection is a very important etiologic element and, of course, with the presence of strictures in the ureters you are bound to have infection. You cannot have retention of fluid in the bladder or in any cavity without having infection in a relatively short time. An interesting point that I might mention is this: That there are a number of vegetable juices that seem to have a marked disinfecting influence on the infections in pyelitis. In my contact with surgeons in the tropics, in Porto Rico, and in Mexico particularly I found that they can disinfect a pyelitis within a very short period of time. A person who comes from the United States, with a pyelitis, who has been under treatment for months, or possibly years, will be disinfected within a few weeks by the use of large quantities of the milk of the unripe cocoanut, in the cocoanut countries, and by the use of the juice of one of the century plants in Mexico. And here in our own country I have, in many instances, secured relief from infection of the kidney and bladder with the colon bacillus by the use of large quantities of watermelon. So that these vegetable juices seem to have the power of disinfecting the urinary cavities if taken freely.

THE NERVOUS CHILD AND HIS MANAGEMENT*

E. BOSWORTH McCREADY, M.D.
WILDWOOD, PA.

The well-poised, effective, emotionally stable adult human being is the exception rather than the rule in modern life. Guthrie[1] believes that "neurasthenia probably causes more misery and pain than any organic disease," and Ernest Jones[2] states, that "neuroses constitute, perhaps, the most widely spread form of disease." A recent institutional census[3] shows that on Jan. 1, 1918, one individual of every 405 in the United States was definitely insane to an extent requiring custodial care. Procrastination in locking the "barn door" is proverbial and is particularly common in nervous and mental disorders. For this both the public and the medical profession are to blame, but more particularly the latter. Physicians deride the efforts of laymen toward that little knowledge of matters medical which they consider renders them dangerous to their own well-being, and while this attitude may be advisable under some circumstances, it can be justified only by the physician's electing himself monitor over both the physical and mental health of his clients by placing a higher value on prevention than on cure.

The neuroses and psychoses are seldom of sudden onset, but are usually the end-result of a long series of contributing factors, which have their inception in early life and are recognizable in early life by the conscientious and careful observer. Parental fears are easily allayed when a trusted family physician or consultant, after examining a distinctly hypoplastic nervous child, states that he can find nothing "organically wrong" (meaning thereby, I suppose, that he finds no disease entity) and dismisses the patient with a tonic and a few vague directions about keeping the child out of school, getting him into the country, or giving him more milk to drink with the optimistic assurance that he is just a little nervous and anemic and will outgrow it after a while. As I have before taken occasion to state,[4] "To this attitude of *laissez faire* more wrecked lives are due than to the actual dishonesty of the charlatan." Equally dangerous are the pessimistic prognostications of another variety of routinist, ignorant of the value of a proper combination of medical, hygienic and educational treatment. While some children are born nervous (hereditary causes), some acquire nervousness (disease, habits, etc.) and others have nervousness thrust on them (faulty training at home and at school). To counteract and to remove these causes in their various and combined phases is the duty (and the privilege) of the physician, and if he fails in its exercise he is derelict.

The difficult feeding case is such because the maternal supply of food does not agree with the child, or because the child fails to agree with the food. The latter condition is due to a deficient legacy of vital force, directly traceable to either or both parents, or to developmental disturbances in embryo. The maternal inability to furnish suitable or sufficient nourishment, and the offspring's inability to metabolize it, are often due to identical causes—organic inferiority and subenergization. The proper development of the nervous system is dependent on proper metabolic functioning, and anything that interferes with this—improper or insufficient food, acute or chronic disease, fatigue, physical and emotional, including that from reflex irritation—all lay the foundation for future trouble. Donaldson[5] and Sugita[6] have shown that the human cortex attains its full thickness at about the age of 15 months, and that at this time cell multiplication and cell migration have practically come to an end, and that the changes incident to further growth are those of enlargement of the cell bodies, growth of axons and myelinization. Underfeeding and nutritional disorders retard the completion of this higher cerebral organization. "All this," according to Donaldson, "shows that the important events in the postnatal growth of the nervous system occur early in life, and this in turn emphasizes the paramount importance of favorable conditions during the first three years of childhood."

The danger signs are many; and while not all are of equal import, none should be disregarded. In early infancy they are digestive disturbances, fretfulness, extreme sensitiveness to light and sound, convulsions, premature or late closing of fontanels, premature or late dentition, precocity or delay in the development of muscular control, in talking, undue sensitiveness of skin and mucous membranes, thumb sucking, head rocking, thigh friction, and manipulation of genitalia. In early childhood they are constipation, perhaps alternating with diarrhea, anorexia, and perversities of appetite, aversion to particular articles of food, night

* Read before the Section on Diseases of Children at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Guthrie, L. G.: Functional Nervous Disorders in Childhood, London, Oxford Press, 1907, p. 17.

2. Jones, Ernest: The Treatment of the Neuroses, p. 17. White, W. A., and Jelliffe, S. E.: Treatment of Nervous and Mental Diseases, Philadelphia, Lea & Febiger **1**: 333, 1913.

3. Pollock, H. M., and Furbush, Edith: Annual Census of the Insane, Feeble-Minded, Epileptics and Inebriates in Institutions in the United States, Mental Hygiene **3**: 78 (Jan.) 1919.

4. McCready, E. B.: What Can Be Done in Childhood to Promote Sound Mental Health? Am. Med. **13**: 301 (May 19) 1919.

5. Donaldson, H. H.: Growth Changes in the Mammalian Nervous System, Harvey Lectures, Philadelphia, J. B. Lippincott & Co., 1916-1917, p. 113.

6. Sugita, N.: Comparative Studies on the Growth of the Cerebral Cortex, J. Comp. Neurol. 1917, p. 581; ibid. **29**: 177, 1918.

terrors, muscular twitchings, tics and muscular incoordination, stammering, lisping, idioglossia, enuresis, tremors of the fingers on extension, restlessness, irritability, perversity sometimes amounting to negativism, phobias, extreme timidity, fatigability, hyperemotivity, etc. If unchecked and uncorrected, the foregoing characteristics tend to aggravation as puberty approaches and we may have definite negativism, stereotypy, and the typical "shut-in personality," psychasthenia, and that short circuit of consciousness included in the term "neurosis." From the physical standpoint, the nervous child more than the child of stable nervous system, is likely to present the anomalies, such as marked cranial and facial asymmetry, ocular muscular imbalance, myopia, hyperopia, astigmatism, adenoids and enlarged tonsils, prognathism, irregular dentition, nevi, deviation of the nasal septum, phimosis, etc. He may show evidence of ductless glandular dysfunction, may be obese with short, stubby fingers, or slender with long bones and tapering fingers, may be sexually precocious, or puberty may be delayed, may take on sudden accesses of growth, or may fail to grow at the normal rate. Adler[7] gives a comprehensive enumeration of the defects which may be found in organically inferior individuals predisposed to the neuroses. Eppinger and Hess,[8] discussing vagatonia, which they find a prominent factor in the neurotic make-up, say: "When we discover that vagatonia is associated with so many constitutional anomalies, which are manifestations of inferiority, we naturally are inclined to ask whether vagatonia itself is not a form of constitutional inferiority." Collin and Verdé[9] find that children with "cerebrospinal fragility," to use their term, are exceptionally susceptible to toxic and infectious influences, and they review a long train of phenomena that are due to this. In fact, so closely associated and interrelated are the symptoms of deficient growth energy (hypoplasia) and nervous insufficiency (adynamia) that the mutual and reciprocal action of each is apparent.

It is not necessary that we classify and label nervous children, as has been attempted, into those destined to develop dementia praecox, those who will develop manic-depressive insanity, psychasthenia, neuroses and what not. The mere fact that the child possesses characteristics which stamp him a potential neuropath or psychopath is sufficient. Treatment should begin as early in life as possible, even in the prenatal period, employing every means at our hand to allow Nurture every opportunity for beneficent activity. Nature, in the form of hereditary tendencies we cannot affect: we can only influence her results through Nurture. The nervous child, particularly the one whose nervousness has been thrust on him, disagrees with his environment. Consequently, his environment should be modified to meet his needs. Unfortunately, the average private home, particularly the urban home, is conducted for the convenience of the adult members of the household; the children may fit in as best they can, just so they keep out of the way of their elders at the infrequent times when these have "no place to go." If this is not the case, they are liable to the opposite extreme of oversolicitude, overindulgence, and inconsistency of management as harmful in its results as the neglect referred to above.

Thus the treatment of the nervous child must begin with a modification of the immediate environment. It is often impossible for the child to improve while he remains in his own household; not necessarily because the home is essentially unfit, but because it is difficult to eliminate the causes originally responsible for the establishment of faulty modes of reaction. Again, no matter how solicitous and conscientious the parents may be, they lack the special training and experience that would enable them to deal effectively with a maladjusted child. This they have already proved, by the child's condition, and it is now time for some one with the necessary equipment to take a hand. If the child remains in his home, his regimen should be under the absolute charge of the attending physician; otherwise treatment is futile. Domestic arrangements must be modified and changed as conditions require, sources of friction must be removed, impatience, irritability and undue sympathy on the part of various members of the household must be curbed. The first consideration should be to see that the child obtains sufficient rest. Not only is easy fatigue a prominent symptom of nervous instability, but it is also a potent cause. Most children are overstimulated by the conditions of modern life; conditions which, because they are usual, are considered normal. Fatigue in children brings about a nervous irritability which leads to further effort, giving the false impression that the child is unusually energetic. Constant calls on the reserves of energy which should only be made in emergency, and very infrequently in childhood at least, result in a condition of nervous insolvency even more serious than the adult form. The constant din of the city streets, the vibration of street cars and automobiles, the flickering glare of the movie, the strident blare of the graphophone, the constant hurry and bustle to be somewhere else as quickly as possible—all these have their effect for harm on the delicate sensorium of the growing child.

Equaling the importance of the prevention of overfatigue is the regulation of the diet. We are accustomed to think of malnutrition as affecting only those of narrow means; yet a large percentage of children from well-to-do homes are undernourished. The schoolchild, in the habit of sleeping until the last minute, comes to the table with time only to bolt one or another emasculated but widely exploited cereal whose only virtue is that it requires a large quantity of cream to admit of its being swallowed. By the middle of the morning his tissues crave more nourishment, which craving is relieved by candy or highly ornamental pastry of low nutritive value. The edge of his appetite blunted, he makes a sketchy lunch, grudging the time that might be used for play. In the afternoon again his appetite is impaired by some easily obtainable carbohydrate food, and at dinner time he partakes of those dishes only for which he has the greatest liking. The result is that his diet, while perhaps not necessarily deficient in calories, is composed mostly of carbohydrates, generating an evanescent energy, but failing to provide for tissue wear and tear, for growth and for storage for emergency. Such diet, also, is poor in vitamins and mineral salts; nervousness in children is often as much a deficiency disease as is scurvy or beriberi.

7. Adler, Alfred: The Neurotic Constitution, New York, Moffat, Yard & Co., 1917.

8. Eppinger, Hans, and Hess, Leo: Vagatonia: A Clinical Study in Vegetative Neurology, Nervous and Mental Disease Monograph Series, No. 20, Ed. 2, Washington, Nervous and Mental Disease Publishing Company, 1917.

9. Collin, A., and Verdé: Cerebrospinal Fragility, Arch. de méd. d. enf. **22**: 126 (March) 1919; abstr. J. A. M. A. **72**: 1332 (May 3) 1919.

Fresh air, bathing, regulated exercise, all have an important place in the hygienic management of the nervous child. It is time for us to apply the lessons learned on the stock farm, in the raising of domestic animals and fowls, to the raising of children. The scientific animal husbandman has learned that the three prime requisites for success, the stock being sound, are: diet, fresh air, exercises. He knows that to secure growth and vigor he must feed a balanced ration, that he must furnish sufficient roughage to give bulk to the intestinal contents, that he must give green stuff and other foods rich in vitamins and in mineral salts. He knows that he must feed in proper quantities, and that to gain the maximum of growth and vigor all animals require range, free from crowding, from noise and from confusion. To the urban realist "pigs is pigs"; but to the up-to-date farmer, good pigs and other animals are the result of balanced rations, exercise and fresh air. What observant swineherd has not seen the "runt" of the litter, nosed aside by his stronger and more active brothers and sisters, equal or outstrip them all when given a trough and a run to himself? Our domestic animals are important and valuable, but are they more important and valuable than our children? Should more scientific study and care be devoted to them than to the individuals for whom they exist?

Mention has been made of the difficulty of bringing about proper nervous adjustment in the child's own home. This is doubly difficult when that home is a city home, and most difficult when it is that of the modern cliff-dweller, the apartment or flat. City life is at best an artificial one for any human being; for the nervous child it is poison. There is nothing so conducive to nervous stabilization as well conducted country life. It is here that the nervous child may be brought to realize what Cabot calls "the glory of raw materials," and it is here that the "human plant" may best receive the nurture that it requires. Mere absorption through contact is not, however, sufficient, for "experience and not memory is the mother of ideas." The child, to gain the best results, must return to a fairly primitive mode of life; and though not, perhaps, obeying to the letter the mandate, "Study Nature, not books," must "study Nature, then books." As Browning says:

> It was better youth
> Should strive, through acts uncouth,
> Towards making, than repose on aught found made.

The conventional cut and dried methods of the modern schoolroom, depending largely on memory and abstractions, fail to properly hold and direct the attention of the child predisposed to nervousness. The study of nature, of bird, animal and plant life, and contact with the various activities of country life serve to bring about function of normal areas of interest and to eliminate abnormal ones.

Sequin,[10] to whom modern education and modern medicine are more indebted than either realizes, was a strong advocate of the utilization of Nature in the educational system. Holman[11] says:

> Of all the great educators of the past, Sequin is the only one who directly attacked the problems of education, from the first, in a purely scientific spirit, and with a purely scientific training and purpose. It is not surprising, therefore, that he did what neither Pestalozzi, Froebel nor Herbart had done: he showed that the development of mind, in the earliest years, depends on the development of muscles, senses and nerves; and he discovered the means by which this could be best secured. In short, he cast such a new and essential light on the principles and practices of education as only a mastermind can. . . . In some ways his scheme of garden schools is the crown and completion of his whole theory of physiologic education. It is also the application of his theories to normal children and ordinary schools with regard to certain essentials. In the light of present-day enthusiasms for, and experiments in, open-air schools and classes, Sequin is seen to have been a real revealer of fundamentals and a true prophet. No better testimony to the profound truth of his great discoveries could be found than the recent rediscovery of them.

Some general rules formulated by him more than forty years ago for the conduct of garden schools are as follows:

1. Do not teach anything indoors which can be learned outdoors.
2. Teach nothing from books which can be learned from nature.
3. Teach nothing from dead nature which can be observed on the living.
4. Nature is to be the schoolroom and the schoolbook, unless insuperable difficulties prevent.

Sequin's scheme, as outlined in two papers read before the New York Academy of Science in 1877 and 1878, embraced a comprehensive scheme for the utilization of public parks, museums, libraries, conservatories and other public institutions in a system of education which would render the schooling of the masses more active and practical. Unfortunately, Sequin's ideas, as a whole, have not yet been put into practice, though I venture to prophesy that the day will come when we shall see them carried out almost in entirety with modifications made necessary by the time, just as we now have open-air schools, manual training, domestic science, vocational training, physical culture, and other "modern improvements," all of which were provided for in Sequin's plan.

A description of a practical method of education for nervous children, based on the theories enunciated by Sequin, I will take up in a later paper.

Wildwood Hall.

10. Holman, N.: Sequin and His Physiological Method of Education, London, Pitman & Sons, p. 224.
11. Holman, N.: Sequin and His Physiological Method of Education, p. 12.

ABSTRACT OF DISCUSSION

DR. PERCIVAL J. EATON, Pittsburgh: I was very much pleased to hear Dr. McCready's description of the nervous child. Some children are born nervous, but they are in the minority. Some children acquire nervousness. A greater number acquire nervousness than those who are born nervous. The great majority of nervous children are those who have nervousness thrust on them, if we can express it that way. It seems to me that all of us who are interested in children and who study the effect of environment on children know that is so, and it seems to me that one of the paramount duties of the pediatrist is to teach the mothers (and the fathers, too) and when the opportunity arises the rising generation of girls, the potential mothers—the dangers, the shoals, the rocks, on which they so easily founder. The "back to the soil" cry is what should be realized. The best place in which to train children is in the environment of the country, the open space and the fresh air. As Dr. McCready has said, the training of the child should begin at once. If you cannot begin a child's training prenatally you should do so as soon after birth as is possible. If the pediatrist would teach along these lines, there would be a great deal more of good health and soundness of mentality, and above all an increase in the character of our children.

DR. RICHARD COLE NEWTON, Montclair, N. J.: I believe it was the late Horace Greeley who said the great trouble in bringing up children in modern times is that we bring them up altogether too carefully. We do too much to our children and often interfere with their natural development. In the South in slavery days the negro children were raised very much like animals; they were put in a sort of pen where they crawled or ran about naked and ate out of a trough. There was never anything the matter with them, so far as known. When I was a young man the negro was ostensibly immune to tuberculosis; now he is more susceptible to it than the whites. His infancy was formerly passed in such a way that he escaped tuberculous infection. Now he is subjected to a so-called higher form of civilization with disastrous results to himself.

DR. HAROLD B. WOOD, Providence, R. I.: There is an aspect in the development of nervous and allied conditions which should be considered. The physical condition of the father at the time of procreation is a potent factor in the development of the child and to a relatively corresponding degree as is the condition of the mother during the child bearing period. The public now appreciates the frankness of the physicians in telling them of the problems of combating venereal disease and would welcome needed advice on this other question. Children should be the result of intent and not of accident. Among the better classes they would be the result of intent if the prospective parents were instructed properly. The physical condition of the father at the time of procreation is reflected in the future child. I am not referring to the transmission of venereal disease or of insanity. All of us know instances which prove my assertions. I know of a father who begat two children at times when he was doing very hard mental and physical work and was much below his physical norm. His children, now adults, are much below his physical and mental powers. In another instance, the first child was conceived when the father was below his normal physical condition and was much worried. The second child was intentionally begotten in the middle of a long and happy vacation. The difference in the children is very marked, the second being of a happier disposition, better physical and mental development and much more resistant to disease. The condition of the mother was not a factor in these cases. Physicians should teach prospective parents that there is a time for establishing their families and that the time for procreation should be intentionally selected according to the presence of good physical condition and mental ease of each parent, especially of the father. In the development of eugenics we need prenatal instruction for expectant fathers.

Vaccination of Cattle Against Foot and Mouth Disease.—The chief of the public health service in Italy, Dr. Lutrario, publishes in the *Bulletin* of the Office International d'Hygiène Publique **11**:266, 1919, an account of successful vaccination of cattle against foot and mouth disease. In 1914 a committee of five leading university professors and four veterinarians was organized for the study of this subject, with government authority and funds. The method which Professor Terni has worked out consists in reenforcing and prolonging by successive inoculations the immunity already contracted by the animals from a first attack. This method has proved effectual on such a large scale that the farmers now ask to have it applied to their cattle. From 25 to 50 c.c. of blood from cattle saturated with the virus are injected by the vein. This is repeated four or five days later, supplemented with 25 c.c. of a 1 per cent. solution of filtered virus. A third inoculation is made eight or ten days later. The inoculations can be done subcutaneously, doubling the amount of the hyperimmunized blood. Another method seems to act as an effectual preventive vaccine; this is the intravenous injection of red corpuscles from an animal with the disease. This also requires three injections. Two animals that had never had the disease and were vaccinated by this technic showed no signs of the disease, to which the controls all succumbed within forty-eight hours, when the animals were placed in a herd affected with the disease in a grave form.

MALAKOPLAKIA OF THE BLADDER *

A. I. FOLSOM, M.D.
DALLAS, TEXAS

REPORT OF CASES

CASE 1.—In November, 1917, Mrs. H., aged 43, was referred to me. Her general health was good. She came complaining of a severe irritation of the bladder. There was undue frequency of urination (nocturnal and diurnal), a burning sensation, and difficulty in voiding. This had been more or less continuous for about six years. Eighteen months prior to her visit to me she had passed in the urine a small piece of tissue which had been submitted to a pathologist, who had reported the tissue to be carcinoma.

The woman was well nourished, had lost no weight, and in general had the appearance of good health. The blood count was about normal save for a leukocytosis of mild degree. Vaginal examination revealed nothing of interest except that the vesicovaginal septum was not indurated at all, and no mass could be felt in the region of the bladder, in spite of a previous diagnosis of cancer. Cystoscopic examination revealed a residual urine of 11 ounces, very milky and having the odor of decomposing urine, similar in every respect to the urine of an old prostatic.

The general bladder surface, roof and side walls were grossly trabeculated, showing numerous cellules. These surfaces, however, were only mildly inflamed. The trigon and the adjacent areas of the base of the bladder were covered with irregularly placed, smooth, rounded, nodular tumors, varying in size and shape; some round and almost pedunculated, others with broad bases and resembling plaques. These masses had none of the appearance of papillomas, there being no fronds nor villi. None of the growths showed any ulceration, nor did any have the appearance of cancer.

There were two of these masses located directly on the edge of the vesical sphincter; they were evidently acting as ball valves, obstructing the passage of urine and resulting in the residual urine and the trabeculation of the bladder wall. One of the small masses was removed with the rongeur and was submitted for microscopic study to Dr. J. H. Black of Dallas. His first report was that the growth was medullary carcinoma. I objected to this diagnosis on the grounds that, first, the history was not that of malignancy; second, the cystoscopic picture did not warrant such a diagnosis, and third, there was absolutely no induration to be felt in the vesicovaginal septum.

I told Dr. Black that I did not know what the condition was, for I had never seen such a condition before, and did not recall having read of such, but that I did feel very positive that clinically it was certainly not a carcinoma.

Not knowing what else to do, I began the use of d'Arsonval fulguration, and after the third sitting I found a decided improvement in the local picture. Several of the masses burned had disappeared, just as is frequently seen in like treatment of papillomas. This confirmed my previous doubts about the condition's being malignant, and I again opened the subject with Dr. Black. His further study of the tissue and search of the literature brought him to the diagnosis of malakoplakia. The only mention of the condition found in the texts was in Mallory's "Histologic Pathology": "Rarely an organism, apparently of the colon type, gains access to the submucous tissue and causes a mild inflammatory reaction there, consisting chiefly of an accumulation of endothelial leukocytes, which may collect in large numbers so that soft polypoid masses project into the cavity of the bladder, and suggest the presence of some form of tumor. The organisms are sometimes present in large numbers in the leukocytes, which are occasionally multinucleated and often contain other inclusions, such as lymphocytes and red blood cells."

The diagnosis seemed justifiable from the clinical, cystoscopic and histologic findings, so we classified it as such.

* Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

Fulguration was continued, and in all there were six sittings. The residual urine decreased materially and the growths were nearly all gone when the patient was seen last in March, 1918.

In April, 1919, she again came in for examination, and no residual urine was found. The bladder surface was practically normal, save for the trabeculation and a few slightly thickened areas over the base of the bladder. No distinct masses were seen at all, and in every way the patient felt entirely relieved of her previous troublesome symptoms.

CASE 2.—In January, 1919, Mrs. S., referred by Dr. Henry Clay, consulted me for a very severe bladder irritation—frequency, burning and general discomfort. This had been noticed first about six years previously and had returned at intervals, getting worse and staying longer each time, until, for the last few months the patient had had very little rest day or night.

Physical examination failed to reveal anything of interest except that her general appearance was below par. She was nervous and her blood showed a moderate secondary anemia. Pelvic examination revealed the uterus retroposed and fairly fixed with a fulness posteriorly.

The vesicovaginal septum was soft and showed no induration at all. Cystoscopic examination disclosed the general bladder surface inflamed in mild degree; the trigon and the adjacent areas were seen to present almost identically the same picture as in Case 1. There were numerous round, smooth, nodular masses, varying in size and shape, some flattened and some almost pedunculated. There were no villous growths, nor were any of the masses ulcerated. A small mass was removed and submitted to Dr. Black for examination.

Fulguration was instituted, and almost immediate improvement was noted in the subjective symptoms. Three treatments were given and a decided improvement in the bladder picture was seen. The symptoms were nearly gone, and the patient was sleeping and eating, and in every way felt improved.

Dr. J. H. Black reported: "The tissue removed from the bladder of Mrs. H., is a soft, reddish-gray mass about 5 mm. in diameter. Sections show normal surface epithelium which is everywhere well defined and nowhere shows any infiltration of the subjacent tissues nor any transition into the types of cells found beneath it. Extending through the mucosa and into the submucosa are large numbers of large oval cells which are, in some areas, densely crowded together with little supporting stroma. These cells have a definitely oxyphilic cytoplasm which is occasionally 'foamy' in appearance. The nucleus is fairly small, deeply stained, and eccentric. These cells are apparently identical with the plasma cell so often found associated with other conditions.

"Many large mononuclears are seen together with some small lymphocytes scattered irregularly through the mass. The stroma is everywhere delicate, and many small thin-walled vessels are seen. Only a few polymorphonuclears are found.

"The tissue removed from the bladder of Mrs. S. is macroscopically similar to the above. Sections show the same character of cells and the same general picture. The number of 'plasma cells' is less, while the mononuclears are proportionately increased. Polymorphonuclears are more abundant also.

"Clinically, the condition present in these two patients is reported to be quite similar. Grossly the tissue is the same. Microscopically, the first picture is quite analogous to those described in the literature as malakoplakia save that none of the so-called 'inclusion bodies' were seen. It differs from the section of a case of Mallory's which I have had the pleasure of studying in that it shows somewhat fewer of the 'plasma cells' and more mononuclears. The second tissue is apparently the same condition save that the inflammatory picture is more pronounced. One who studies these slides would, I think, be forced to the conclusion that malakoplakia is a comparatively rare inflammatory condition which, while essentially characteristic, varies somewhat in its cell content as do other inflammatory conditions."

COMMENT

A reasonably careful search of the literature shows that the first use of the term malakoplakia was by von Hansemann[1] in 1903, but, as early as 1902, Michaelis and Gutmann[2] described the same condition. Since that time twenty-two cases have been reported, all but two of which were observed at necropsy. Zangemeister,[3] in 1906, reported the first case observed during life. The only article in the English language found was by A. M. Pappenheimer[4] of Bellevue Hospital, in which he reports two cases seen at necropsy.

The disease appears to be one of late life, only one case occurring in a child. All other patients were over 40 years old. The majority of these cases have been found in females, including the author's cases. Eighteen have been found in women and six in men.

Opinion is divided as to the part tuberculosis plays. Some maintain there is very close relationship, while others do not consider it of any importance save as an accidental association. Landsteiner[5] thinks tuberculosis is merely coincidental when found. "The histologic and bacteriologic findings preclude tuberculosis, although the microscopic picture lends support." Von Gierke, in a case with tuberculosis of the lungs, intestine and tubes, found tubercle bacilli in the bladder folds, never in the plaques themselves.

Wegelin[6] and Loele[7] did not find tuberculosis and do not consider it of any importance.

Waldschmidt[8] concludes by saying:

> If we assume tuberculous etiology we must assume action of tuberculous virus at a distance not heretofore known. Summarizing twenty cases with necropsy, tuberculosis was the cause of death in six and minor foci were found in five others; in two cases no reference is made to search for such changes; in seven no tuberculous changes were found anywhere; that such infection was found in two thirds of the cases is certainly explained by the frequency of this disease, irrespective of other conditions.

Pappenheimer says:

> The number of cases is as yet too few to decide whether the coincident occurrence of tuberculous lesions in other viscera is more than fortuitous.

In my cases no history of tuberculosis was obtainable. No tuberculin test was made; repeated stains of the urine did not detect tubercle bacilli. No guinea-pig test was made. A careful examination did not reveal any evidence of tuberculosis, and I feel that I am safe in saying that tuberculosis was not a factor in either of my cases.

Among those writing on the subject, Gutmann and Michaelis alone consider the condition neoplastic, calling it "a form of benign epithelial neoplasm"; Hansemann does not take a definite position as to the nature of the growth. All other writers are agreed that the lesions are "infectious granulomas of inflammatory

1. Von Hansemann: Ueber Malakoplakie der Harnblase, Virchows Arch. f. path. Anat. **173**: 302-308, 1903.
2. Michaelis, L., and Gutmann: Ueber Einschlüsse in Blasentumoren, Ztschr. f. klin. Med. **47**: 208-215, 1902.
3. Zangemeister, W.: Ueber Malakoplakie der Harnblase, Centralbl. f. d. Krankh. d. Harn- u. Sex. Org. **17**: 491-495, 1906.
4. Pappenheimer, A. M.: Malakoplakia of the Urinary Bladder; Report of Two Cases, M. & S. Rep. Bellevue Hosp. **2**: 305-309, 1905, 1906; Malakoplakia of the Urinary Bladder; Report of Two Cases, Proc. New York Path. Soc. **6**: 63-71, 1906-1907.
5. Landsteiner, K., and Stork, O.: Ueber eine eigenartige Form chronischer Cystitis (v. Hansemann's Malakoplakie) Beitr. z. path. Anat. u. z. allg. Path. **36**: 131-151, 1904.
6. Wegelin: Malakoplakie der Harnblase, Cor.-Bl. f. schweiz. Aerzte, **40**: 234, 1910.
7. Loele, W.: Ein Beitrag zur sog. Malakoplakie der Harnblase, Beitr. z. path.
8. Waldschmidt, M.: Ueber Malakoplakia vesical urinarial, Ztschr. f. Urol. **6**: 541-564, 1912.

origin." Landsteiner and Störk consider it an inflammatory process, the characteristic large cells being derived from interstitial tissue, though they are unable to determine from what kind of cell. Their phagocytic powers indicate wandering cells.

Gierke and Ellenrieder find a resemblance to epithelioid cells of tubercle and think they originate partly from connective tissue, partly from blood.

Güterbock[9] thinks them similar to large lymphocytes and true fixed connective tissue cells.

Loele considers them transitions from large granulation cells, not differing from other inflammatory reactions.

Landsteiner and Störk think the histologic picture that of an inflammatory process and propose making it "cystitis en plaques."

Hart[10] would classify it as a chronic, nonspecific inflammatory hyperplasia.

Michaelis[11] suggests that it is a sort of specific granuloma, due to irritation of cellular elements of submucous lymph spaces.[12]

Pappenheimer closes his description of his two cases by saying:

> The precise origin of the characteristic large cells is still a subject for speculation. That they are of similar origin to the phagocytic cells seen in other inflammatory processes seems beyond question. Their large size may, as has been suggested by Michaelis, be due to the inhibition of fluid from the urine.

In reporting his second case he says:

> Histologically the characteristic structure is obscured partly by postmortem changes in the tissue, partly also by inflammatory infiltration and necrosis. The characteristic "inclusions" could not be demonstrated, nor were bacteria to be found. Since, however, there is no other known bladder lesion producing a similar macroscopic appearance, the lesions must, for the present, be classed as one of malakoplakia.

9. Güterbock: Ein Beitrag zur malakoplakie der Harnblase, Leipzig, 1915.
10. Hart, K.: Ueber die Malakoplakie der Harnblase, Ztschr. f. Krebsforsch. **60**: 380-395, 1906.
11. Michaelis, L.: Die Malakoplakie der Harnblase, Med. Klin. 1905, p. 331.
12. In addition to the references already given, the following will be found of interest:
Berg, G.: Ueber malakoplakia vesicae, Verhandl. d. deutsch. Gesellsch. f. Urol., 1909, pp. 539-547.
Blum, V.: Fall von Malakoplakia der Harnblase (von Hansemann), Wien. klin. Wchnschr. **31**: 225, 1918.
Von Ellenreider, A. R.: Ueber Malakoplakie der Harnblase, Freiburg im Breisgau, 1906.
Englisch, J.: Ueber Leukoplasie und malakoplakie, Ztschr. f. Urol. **1**: 641, 745, 1917.
Ferrari, E., and Nicolich, G.: Malcoplachia della vesica (Hansemann), Folia urolog. **8**: 644-663, 1913-1914.
Fränkel, E.: Ueber Malakoplakie der Blase, München. med. Wchnschr. **50**: 2162, 1903; Zwei Fälle von Malakoplakie der Harnblasenschleimhaut, ibid. **53**: 242, 1906.
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ABSTRACT OF DISCUSSION

DR. ARTHUR L. CHUTE, Boston: I have been very much interested in the report of the case; but as I have never seen anything like it, I can only speculate as to its nature. It seems to me that Dr. Folsom is perfectly right in believing that it must be some chronic inflammatory condition. It does not seem to me that it is of a tuberculous nature; it does not act in the way tuberculous processes do. I shall be very much interested to hear the report of further cases of the same sort to see if they make the condition clearer. It is a new one to me.

THE MAXILLOFACIAL SURGEON IN A MOBILE HOSPITAL*

REA P. McGEE, M.D., D.D.S. (DENVER)
Lieutenant-Colonel, D. C., U. S. Army
JEFFERSON BARRACKS, MO.

When roads are congested with hundreds of thousands of moving troops with all the impedimenta of war, the matter of the weight and the bulk of the equipment for those who operate on wounded men must be carefully considered. Only those things which are absolutely necessary can be carried. The typical front line operating organization is a mobile hospital. The dressing stations and field hospitals are crowded with the work that they are expected to do, which is essentially emergency treatment. There are many patients who might have a chance to recover if they could have specialists to operate on them at once. Many classes of wounds occur that emergency units are unable to handle. The element of time and transportation is a very important factor. Men that could be saved if they could be operated on within a few hours of the receipt of the injury, and many others who are in such a condition that they cannot survive the trip back to the evacuation hospital, can be successfully taken care of in the mobile units. For these reasons the mobile hospitals were developed.

The equipment furnished by the government for the front line work in this department was well planned, but the insurmountable difficulties in procuring especially designed instruments at the beginning of the war defeated the fulfilment of the plans. There was only one remedy: that of the surgeon's taking his own equipment. That is what I did, and I believe it is the satisfactory solution for all specialists in any war in any army.

For plastic surgery a very complete assortment of needles, Hagedorn half curved and full curved, with cutting points, both large and small, is required. Small, sharp pointed gynecologic needles are also required. One complete set of cleft palate instruments, with appropriate mouth gags, at least three good tongue forceps; an assortment of hemostats, particularly small, sharp-pointed ones; several needle holders of varying shapes; one full set of extracting forceps; an

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* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

assortment of elevators; two ronguers; one small dental hand drill; wire working pliers; orthodontic wire; modeling compound; a set of knives; a sharpening stone of carborundum, mouth retractors, and a tracheotomy set can all be easily carried and, if carefully selected, will supplement the instruments found in the ordinary hospital equipment.

It was my good fortune to be detailed as maxillofacial surgeon to U. S. Mobile Hospital No. 1, A. E. F., and it is from the experience gained there that I speak.

NATURE OF WOUNDS

Mobile Hospital No. 1 was always in the area between the 75's and the 6-inch guns. Our advanced position made it possible for us to receive many patients as early as two hours after they were hit. These patients were first carried to the front line dressing station, then, by ambulance, to the triage, and from the triage to us. Only nontransportable battle casualties were taken by No. 1. This meant that we received the most desperately wounded men. Nearly all our patients were suffering more or less from shock. Many were in a state of coma. In nearly all cases of shock in which there was a fracture of the mandible, the patient came out of the condition of shock as soon as the jaw was set, because, in these cases, shock is usually due to obstructed respiration.

As these patients came in they were placed in the receiving ward and, according to the nature of their wounds, assigned to the different services. They were usually covered with blood and dirt, almost invariably suffering from extreme exhaustion, and many, particularly those with wounds in the head, face and neck, were suffering from labored respiration.

As soon as possible after their arrival, they were taken to the roentgen-ray department and examined with the fluoroscope for foreign bodies. It was impossible for us to carry a photographic roentgen-ray outfit, and consequently we depended for localization on indelible pencil marks made on the surface of the body.

When the patient came to the operating table, the face was usually matted with blood and powder, and it was very difficult to get him into the proper condition. We overcame this difficulty by using gasoline to wash the face, and after that shaving as smooth as possible. Frequently it was necessary to have the anesthetic given before the slightest attempt could be made to clear up the face.

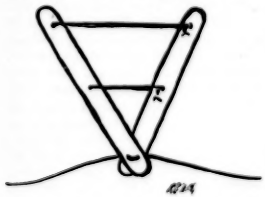


Fig. 1.—Emergency splint to permit breathing when the patient is lying down.

TREATMENT

The first things to consider are the depth of the wound, the shape of the wound, and whether or not there is a loss of tissue. Not to exceed 1 per cent. of the patients have a considerable loss of tissue other than that in the direct course of the missile. This applies to wounds of the soft tissues and not to bone injuries. Bone injuries in the maxillary region were most severe when caused by high explosive. The Germans did not use true shrapnel. All injuries marked as shrapnel wounds were really high explosive wounds.

In my clinic at Mobile Hospital No. 1, I had only one case of bayonet wound of the face. We found many men wounded with the bayonet in the front line area, but they were all dead.

The control of hemorrhage in these fresh wounds is not so difficult as the control of hemorrhage later in older wounds. We were bothered very little with secondary hemorrhage, largely because the mouths of the American soldiers are the cleanest and healthiest of those of any soldiers in the world. Much of the secondary hemorrhage that was encountered in the British army was due to the tremendous percentage of oral infection among its soldiers. Fortunately for us, the American habit of taking care of the mouth and teeth and the service of the Dental Corps in the Army render septic mouths a rarity rather than a rule.

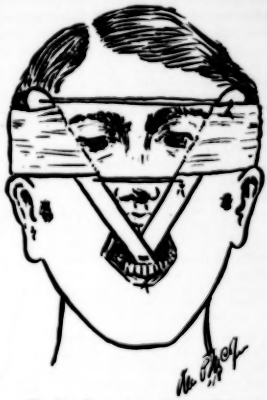


Fig. 2.—Emergency splint applied, jaw thrown forward and mouth held open.

Cases in which the parotid gland and Stenson's duct were injured presented the possibility of salivary fistula, and my plan in handling them was always to gather up the exposed portion of the duct or gland with sutures, carry the sutures inside the mouth and fix them there, and then close the face wound immediately so that the fistula, when established, would follow the suture line and open into the mouth instead of on the face. It makes very little difference what portion of the buccal cavity the parotid gland discharges into, and if any change was desired later it was very easily effected; but a well established fistula on the surface of the face is an extremely difficult thing to handle.

When it was possible tracheotomy was avoided; but in some cases, before, during or after the operation, it was necessary to increase the air supply of the lungs, and a number of tracheotomies were performed. In those cases in which the patients were tubed immediately on their receipt at the hospital, I always had the ether given through the tracheotomy tube. This is a very convenient method of etherization for operation on the face and mouth, and should be taken advantage of when intubation is necessary.

REPORT OF CASES

CASES IN WHICH RESPIRATION WAS IMMEDIATELY IMPROVED BY EARLY SPLINTING

CASE 1.—J. C. received a gunshot wound in the arm and the face. The bullet traversed the right upper arm, caused a large, superficial wound of the neck, and destroyed the body of the mandible from the cuspid to the second molar on the right side. The patient suffered from shock and labored respiration. Preoperative shock treatment failed to get the patient in condition to receive an anesthetic. The neck wound was cleansed; loose bone fragments were

removed; the jaw was set, and a wire splint was applied. The respiration immediately improved, and the patient was soon out of shock. No anesthetic was used. September 13, 1918, three sequestrums were removed. September 16, the patient was evacuated in good condition.

Case 6.—P. B. was wounded Nov. 2, 1918, at 2 p. m., admitted the next day at 12:30 a. m. and operated on the same morning at 2 a. m. He had a gunshot wound of the mouth and the neck. The roentgen-ray finding was negative. A machine gun bullet had entered the back of the neck, to the right of the center, and at the level of the chin; had traversed the neck, the pharynx and the floor of the mouth, and had destroyed bone and teeth from the left central to the right bicuspid, removing bone to within one-half inch of the lower margin of the mandible. There was a severe, hemorrhagic edema of the sublingual glands, driving the tongue backward toward the pharynx. The patient could breathe only when leaning forward, and then with difficulty. The lower lip was cut open from the center to the left mental foramen. The sublingual glands were drained, and a wire suture was placed through the incisions to keep the drainage open. A stab wound was made and a rubber tube drain inserted under the chin; the bone fragments were removed, the lip repaired and tension sutures employed.

Since returning to the United States I have seen this patient; he had fully recovered, with no further operative interference.

Case in Which Emergency Lever Splint Was Used

Case 9.—C. H. was wounded Oct. 14, 1918, at 8 a. m., admitted October 15, at 6:45 a. m. and operated on the same morning at 8 o'clock. The roentgen rays revealed a foreign body 8 by 10 mm. under the upper third of the left ramus. There was a compound comminuted fracture of the ramus on the left side, and one of the body of the mandible on the right. The foreign body entered the right cheek, passed through the palate and lodged on the inner surface of the left ramus. Edema of the palate was so great that the mouth could not be closed, and the drop of the fractured mandible prevented normal respiration. An emergency lever splint was applied. The respiration immediately improved, and the patient was able to breathe lying down, for the first time since the receipt of the injury. October 16, the lever splint was removed, and the edema of the palate was found somewhat improved. An open-bite splint was applied, and breathing stopped. The lever splint was replaced, and the respiration became normal. October 18, a local anesthetic was given. I removed a rifle ball from the inner surface of the mandible, evacuated pus, inserted a drain and applied an open-bite splint with a wire anchorage. The condition of the patient was good at the time when he was evacuated.

Bayonet Wound of the Face

Case 10.—V. E. was wounded Sept. 26, 1918, admitted the next day at 6:45 a. m. and operated on that evening at 7 o'clock. The patient had a bayonet wound in the right cheek which had opened the antrum and fractured the alveolar process of the maxilla from the third molar (left) to the second bicuspid (right), with comminution between cuspids and bicuspids on each side. The roof of the mouth had been broken through into the nose and the antrum. There was a stellate wound of the face. The injury was cleansed and the wound sutured. A drain was inserted, a modeling compound splint with wire reinforcements on the upper teeth was applied, and a chin cup used. The patient was evacuated on the third day.

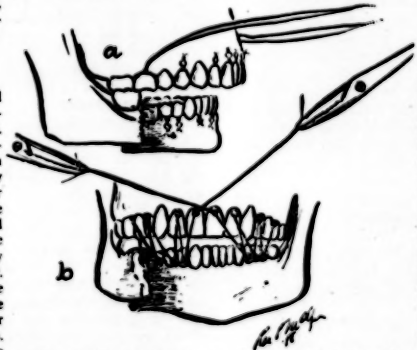


Fig. 3.—Wire splint: a, method of forming wire loops on the necks of the teeth to serve as pulleys; b, wire threaded through the loops.

Case of Exposed Parotid Gland

Case 11.—S. M. was wounded Sept. 29, 1918, at 7 a. m., admitted September 30 at 6:55 p. m. and operated on that night at 10 o'clock. The roentgen-ray finding was negative. A gunshot wound had perforated his face and fractured, on each side, the body of the mandible, with a loss of tissue in the molar and the bicuspid region. The upper molars and the second bicuspids were shattered. The tongue was more than two thirds severed. The wound in the left cheek measured 3 by 3 inches. The parotid gland was exposed in the wound, and the capsule ruptured. Breathing was difficult. The tongue was repaired, the mucosa of the cheek stitched, the exposed parotid gland caught with a suture and carried through the mucous membrane, and a ligature passed through the mouth and back over the ear. Primary sutures in the face wound and tension sutures with buttons were placed. The condition of the patient required rest before further operation could be attempted. At a second operation, performed October 1, edema of the glottis and the larynx was relieved, and a low tracheotomy was performed. At a third operation, October 3, the jaws were wired and the tube cleaned. The patient when evacuated was in good condition.

Destruction of One Half the Maxilla

Case 12.—C. O. was wounded Oct. 11, 1918, at 7 a. m., admitted October 15 at 1 p. m. and operated on the same day at 4 p. m. A high explosive shell fragment had torn the right side of the face entirely open and caused a compound comminuted fracture of the upper jaw, complete up to the floor of the orbit. The right half of the maxilla was destroyed, and the palate was destroyed except for a few fragments of bone and soft tissue. The left cheek was without support, owing to the displacement of the remaining fragment of maxilla to the right. The base of the nose was torn away, and the wound was septic. The patient was unconscious. No injury had been done the mandible. I replaced the fragment of maxilla, repaired the palate, as far as possible, by closure of the remaining mucous membrane and repaired the mucosa of the mouth. Tissues of the upper lip, face and nose were returned to place and sutured. Button tension sutures were used. An interdental splint was applied and anchored by tension wires from the lower teeth to the head bandage. A modeling compound splint was placed in the nose. Respiration stopped on the table, and I performed a high tracheotomy with good results. A gunshot wound of the outer canthus of the left eye was not operated on because of the condition of the patient.

Case Requiring Modeling Compound Splint in Area of Lost Bone Tissue

Case 13.—H. M. was wounded Oct. 11, 1918, at 11:30 p. m., admitted October 12 at 3:30 a. m. and operated on, that day, at 3 p. m. The injury was a gunshot wound of the chin and a compound comminuted fracture of the mandible. All the bone was gone from the second bicuspid right to the second bicuspid left. The lower lip was detached and hanging by a pedicle from the left side. The bridge of the nose had been shot out. The segments of the mandible were wired into position. Wires were suspended from bicuspid to bicuspid, and a modeling compound splint approximating the shape of the missing bone was attached to support the soft

tissues of the reconstructed chin. The chin and the lower lip were repaired. A modeling compound splint was placed on the nose to prevent the turning up of the tip from cicatricial contraction. Button tension sutures were used, and a cigaret drain placed. The patient was two and one-half hours under gas-ogygen analgesia.

SPINAL ACCESSORY NERVE INVOLVEMENT

CASE 14.—M. B. was wounded Oct. 12, 1918, at 10:30 a. m., admitted the same day at 2 p. m. and operated on that night at 11:45. Roentgenoscopy revealed a foreign body, 10 by 12 mm., under the mark on the right side of the nose. It was apparently against the body of the third cervical vertebra. The patient had a gunshot wound of the face; a high explosive fragment had entered the cheek opposite the right first molar, and had ranged inward and backward, fracturing the mandible at the angle on the right side and severing the mandibular artery. The muscles of the pharynx were penetrated. The foreign body was found against the body of the third cervical vertebra. It was removed through the wound of entry, without opening into the buccal cavity. The face wound was stitched and the jaws wired. Immediately on receipt of the wound, voluntary motion in the arms and the legs ceased; the patient was semiconscious. After the operation, the left arm and both legs gradually approached normal. On the second day the patient was fully conscious. The right arm had normal sensation but no motion. The patient could close the right hand and had a slight motion in the wrist. He was evacuated.

METHODS IN DIFFERENT TYPES OF WOUNDS

We had several cases of double fractures of the ramus near the condyles, with the soft palate traversed. In all these instances the men had been shot by Boche snipers. In this type of injury the jaw drops downward and backward and seriously interferes with respiration. If the jaw is set with the mouth closed, the swelling of the soft palate will completely stop respiration. It is necessary to splint the mandible with the mouth open, but with the jaw very considerably thrown forward, to allow the patient to lie down and yet breathe. This was done with a very simple emergency splint of my own invention, made from wooden tongue depressors and orthodontic wire (Fig. 1). All patients with this type of injury will die unless treated early. They invariably come in in a sitting position, leaning forward, breathing with the greatest difficulty, and extremely apprehensive. Those who become unconscious are usually brought in dead, because breathing requires the greatest exertion on the part of the patient. The emergency splint, in every case, allowed the patient to lie down and breathe in the ordinary position (Fig. 2). He was fed with a rubber tube on a feeder through the forks of the splint. The levers were usually left in place for three days and then removed, whereupon the jaw was closed with the wire splint that I used as a routine.

In fractures of the maxilla, complete or partial, whether or not complicated with fracture of the mandible, the early treatment is employment of the open bite splint, such as is furnished by the United States government, or the Kingsley type of splint used by the New Zealand troops. The Kingsley type I believe to be the most efficient. In all cases, chin bandages of whatever type are extremely unsatisfactory.

Union in fractures of the maxilla usually occurs much more promptly than union of the mandible; but when we do not get a prompt result, it is much more difficult to treat an ununited fracture of the maxilla.

In all cases of traumatic cleft of the hard or the soft palate, the injury is repaired at once. It is desirable to avoid circumferential wiring or bone sutures whenever a good result can be obtained without them.

Abscessed teeth or teeth that were actually loosened in the line of fracture were always removed.

It is seldom necessary to make incisions in the facial tissues in jaw cases, the wound of entry and the natural opening of the mouth furnishing sufficient access and drainage. Stab wounds under the margin of the mandible are frequently necessary for drainage. Rubber tubes are always anchored in the drainage area with sutures. Every fractured jaw must be drained at the point of the fracture.

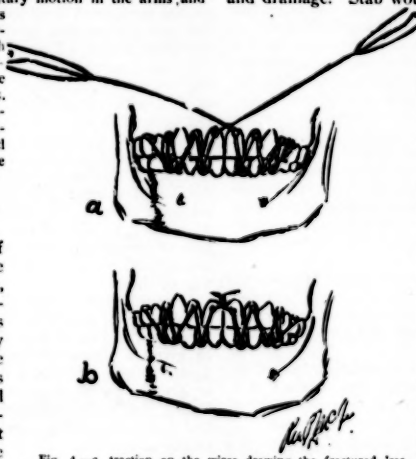


Fig. 4.—*a*, traction on the wires drawing the fractured jaw into place; *b*, fracture secured in position.

USE OF THE WIRE SPLINT

The wire splint used in my service was made from the ordinary orthodontic wire. Short wires were placed about the necks of selected teeth. These wires were turned with a loop about one-eighth inch in diameter, so that it would act as a ring pulley on each tooth (Fig. 3 *a*). Two full length wires were used, usually anchored to the upper first molar if present, and if not, to some similarly strong point of vantage. These wires, being doubled, were then worked through the alternate rings on the other teeth, first, below, then, above; then, below; then, above (Fig. 3 *b*). After these wires had been placed, the ends grasped with a hemostat, and gentle traction was made outward (Fig. 4 *a*), which invariably swung the jaw into its correct position, with practically no pain to the patient, and no necessity of manipulation with the hands, no shoving or pushing or pressing to get the fragments disengaged. The wires were then twisted in the median line, so that the jaws were firmly held together (Fig. 4 *b*).

The great advantage in this type of temporary splint is its ease of application, the ability to apply it without a general anesthetic, and the practically painless setting of the fracture. When an anesthetic must be administered, either for face complications or for wounds of other parts of the body, the jaws should not be splinted with the teeth in occlusion until all danger of emesis has passed. In these cases I always placed the wires ready for splinting, and then, two hours after the patient had recovered from the anesthetic, I drew the

wires up to close the jaws. In this way all danger was avoided, and time was saved.

Another advantage of this type of splint is that if it becomes necessary to open the jaws quickly, it can always be done with one cut from a pair of scissors. The old type of wire splint, in which two alternate teeth were wired together, made it almost impossible to open the jaws, and, when they had been opened, the entire splinting process had to be repeated; but with the type of splint which I devised, it is simply necessary to twist another length of wire on the end of the cut wire, thread it through the loops, and again close the jaws by traction.

PRINCIPLES OF TREATMENT

Fractures of the jaw in war surgery are almost always complicated by wounds of the face. The jaw should first be splinted, or, at least, temporary splint wire should be placed and followed by repair of the facial wound.

Gas gangrene does not occur in the region of the face; consequently, débridement is contraindicated.

All live tissues and all bruised tissues that have a sufficient vitality to recover must be preserved, and the rich blood supply of the face makes it possible for many bruised areas to regain their circulation.

The contraction of the muscles of expression draw the lacerated tissues from their normal positions, and the greatest care must be used to make the correct approximation. Actual loss of tissue sufficient to require flap transfer is comparatively rare. The extensive loss of facial tissue from gunshot injury, so often seen in base hospitals, is more frequently due to shrinkage and adhesions of flesh fragments than to the actual loss from the primary wound.

The routine work was to bring together the mucous membrane before the cutaneous surface was sutured. Tension sutures were used in all extensive injuries to support the approximating sutures and avoid scars and displacement.

When the nose is injured, it should be repaired at once, if possible; and if the injury has resulted in a loss of bone structure, a modeling compound splint should be used to prevent cicatricial displacement.

Patients with the jaw splinted in either the open or the closed position, require liquid diet through a rubber tube attached to the ordinary hospital feeder. Many times the soldiers with their mouths splinted were unable to smoke. This was overcome by placing a glass of water or cup of coffee or cup of chocolate where they could reach it, and by wetting their lips with their fingers they were able to smoke so long as the moisture remained. The process was repeated as often as necessary so long as they wanted to smoke. This gave them a great deal of comfort. It was also possible, in cases in which the lower jaw was fixed or missing, for the patient to hold one nostril closed, and, by moistening the other nostril and putting the cigaret in it, he could smoke very nicely.

The mouth should be cleansed hourly with a warm salt solution. The 5 per cent. eusol solution used by the British is very effective in these cases. A compressed air spray is important.

Wounds on the surface of the face should have as little dressing as possible.

Wounds of the tongue were numerous. Bone fragments, teeth and bullets were commonly driven into and sometimes through the tongue. In one case the tongue was more than two thirds severed in the region of the molar teeth. These injuries are not difficult to repair with proper instruments, and in no case was there failure of union.

Local anesthesia with procain was used frequently. This was a saving of time and was satisfactory. One of our greatest difficulties, with our very limited equipment, was to cleanse properly the wounded mouth. This work was carried on as best we could, and our patients were evacuated in good condition; but as Mobile Hospital No. 1 was an essentially front line organization, moving as many as fourteen times during the period of hostilities, our evacuation arrangements were very frequently interfered with, so that patients would have to be taken on motor trucks, ambulances or narrow gage railways, or in any way that it was possible to get them out and get them back. We were in no position to retain them after the period of danger from their wounds had passed. During the campaign, Mobile Hospital No. 1, with a bed capacity of 200, performed in all 6,048 major operations. From this you will see that we did not keep our patients for any great length of time; and owing to the impossibility of arranging proper care for mouth cases during the evacuation, patients with these injuries usually arrived with very considerable sepsis, which they did not have when they left us.

The great points to be observed in the front line work are the conservation of bone, mucous membrane and skin. Drainage must be carried to the extreme. All bone fragments that have live periosteum must be retained. One of the difficulties of this special branch of surgery, as with all others in military service, is the lack of complete understanding of the possibilities and the limitations in front line work as compared with that of the base.

I would suggest that all maxillofacial surgeons be required to be graduates both in medicine and in dentistry; or, in lieu of this, that a maxillofacial surgeon be given a course of training in oral surgery in a dental college, and that a dental maxillofacial surgeon be given a course in general surgery in a medical college. This work absolutely demands both a surgical and a dental training, combined with as much artistic ability as possible.

The conditions for maxillofacial work at Mobile Hospital No. 1 were extremely favorable, because we moved so frequently that we were not hampered with orders, and usually failed to receive detailed instructions until long after their period of usefulness had passed. The commanding officer, Col. Donald Macrae, Jr., gave every support to this department. This was of immense importance, because the specialist in a comparatively new department of war surgery encounters many difficulties that will not occur when a precedent has been established; and, in this particular instance, the precedent was not only the establishment of the specialty of the surgery of the face and jaws, but also the unusual arrangement of placing a dental officer in charge of a surgical department, to handle all cases of the maxillofacial type. Those who follow us in the next war should have comparatively little difficulty in beginning where we leave off.

Diphtheria.—Diphtheria is probably a very ancient disorder. There are possible references to it in the Talmud, the Hippocratic collection and later Greek medical writers.—F. G. Clemow, The Geography of Disease, p. 131.

POPULARIZING A QUININ FORMULA FOR THE TREATMENT OF MALARIAL FEVER

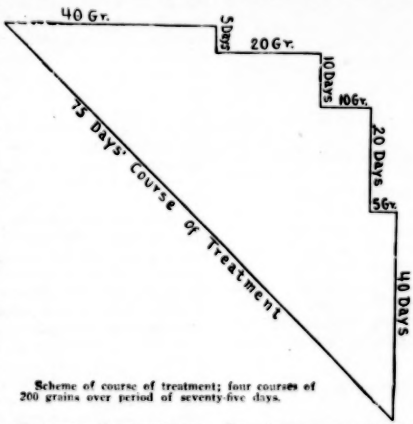
BRUCE MAYNE
Biologist, United States Public Health Service
MEMPHIS, TENN.

WITH COMMENT BY

HENRY R. CARTER, M.D.
Assistant Surgeon-General, U. S. Public Health Service
BALTIMORE

In the treatment of malarial fevers, the public health officer has seen cause for despairing of obtaining a complete cure. The cooperation of physician and patient in quinin administration seems impossible to secure; yet without this essential, shotgun therapeutics on the part of the physician, and self-medication on the part of the patient are the inevitable results. Still, for some reason, in face of criminal indifference in this regard, malarial fevers are undoubtedly being reduced in severity and in incidence.

The greatest dereliction consists in the insufficiency of the dosage of quinin and the aborted length of treatment. In various hospitals, and in private practice through the malarious districts of the South, the system of quinin treatment varies not so much in proportion to the needs of the individual patient as according to the individual tastes of the medical officer or family physician. In the main, the popular dosage (applied to adults without unusual idiosyncrasy) ranges from 12 to 20 grains daily for active cases, and then when clinical symptoms disappear, the treatment is discontinued without a consideration of subsequent microscopic examinations, and without anticipating the clinical instability resulting in a relapse.



Scheme of course of treatment; four courses of 200 grains over period of seventy-five days.

These difficulties open the way to an effort toward standardization. The course of treatment here proposed is offered with a full realization of its inapplicability to special and complicated cases; and it is accompanied with the warning to the lay patient that it is not recommended in attempted self-medication without professional consultation.

The formula that we suggest does not take into account the special question of symptomatology and the algid forms. The severe cachectic cases and the like do not come within the scope of the treatment of this subject. It touches only the preponderance of acute forms without peculiar atypical symptoms. Nor is the matter of method of administration other than that by mouth brought into focus.

One must realize at the outset that the ideal formula must provide: (1) for the relief of the patient—the elimination of clinical symptoms; (2) for the destruction of plasmodia in the peripheral circulation tending toward the prevention of the formation of sexual parasites; (3) for the prevention of the production of quinin-inaccessible parasites (so-called resistant or quinin-fast forms), and (4) for the effectual inhibition of the recurrence of clinical symptoms accompanying relapse with the reinvasion of asexual parasites. With these ends in view, this arrangement of administration is proposed:

ARRANGEMENT OF COURSE OF TREATMENT

The course of treatment provides for the application of a minimum of seventy-five days in the administration of 800 grains of quinin bisulphate.

The formula is elaborated in a geometric progression, consisting of four courses of 200 grains each. A scheme of the formula is sketched in the accompanying chart. An analysis of the formula follows:

1. *Forty grains daily for five days.*—Ten grains of quinin bisulphate should be given four times daily. At the end of this period there should be no severe paroxysms, no chills, and only young rings and mature gametocytes in the blood.

2. *Twenty grains daily for ten days.*—About the middle of this stage the patient should probably be out of bed and clinically and apparently normal; fevers and chills probably absent. With the exception of gametocytes, parasites will not be demonstrable microscopically.

3. *Ten grains for twenty days.*—Arsenic (Fowler's) or other tonic may be prescribed, if indicated. Only gametocytes remain in the microscopic examination. The patient should be on duty or able to resume normal activities, if necessary.

4. *Five grains for forty days.*—In this stage, not the least important, a 5 grain capsule of quinin bisulphate or its equivalent should be taken with a tonic accompaniment if indicated. This stage is marked by the apparent recovery of the patient. At this juncture a continuance of treatment should be strongly urged, especially in the benign types of malaria, for a period of two weeks or more. By this time, a microscopic examination reveals only rapidly disappearing or disintegrating gametocytes which may be considered potentially negligible. The sexual forms of tertian and quartan parasites are not demonstrable at this stage.

This system of medication is considered entirely feasible only with patients subject to practical control. In dealing with young persons and in chronic cases among adults, modified treatment must be given not represented here. It is observed that the weak link in the popularizing of the formula has always been the indifference of the physician and the patient toward continuing treatment long enough to insure absence of subsequent recrudescence of the initial infection. This feature can be overcome only under conditions approaching a military status. It is indicated in this connection that a sustained and effective treatment of malarial fever is equal to or superior to indifferent

quinin prophylaxis. At any rate, it is at present the more necessary of the two to solve on an experimental basis, on a larger scale than has been thus far possible.

DIFFICULTIES ENCOUNTERED

As regards the difficulties encountered in the treatment of malaria, probably the most essential point of view is the consideration of the chronicity of this insidious disease. It is a well known fact that the average patient, or, I think I may say, the majority of patients, cannot be induced to take sufficient quinin for a sufficient period to effect a cure, or at least to prevent a relapse in a reasonable time. This is especially appreciated by physicians in the Mississippi Delta, many of whom have unwittingly confessed to me that they themselves have harbored malaria parasites without attempting to rid themselves ultimately; and like the patients to whom they administer, are quite satisfied with a temporary cessation of symptoms to the point of the absence of febrile paroxysms. Therefore, it can hardly be expected that the laity will be readily converted to the proper standard of medication. It is a common experience that the chronic forms of malarial fever are developed through the fact that the patient is subjected to initial small doses of quinin and that the treatment is discontinued when the active symptoms disappear and the patient states that he feels better.

A systematic campaign of publicity along these lines would have far-reaching benefit, both for the physician and for the patients to whom they profess to administer. We cannot ascribe this condition entirely to ignorance, because too many exceptions have been encountered. I believe the term "fatuous indifference" would better apply. Needless to say, this situation has its sequel in the undermining of efficiency to an extent that is probably incalculable. Therefore, the conscientious sanitarian longs for any method that can be devised to ameliorate the conditions brought about through lowered standards.

THE LENGTH OF TREATMENT AND THE INITIAL DOSE

In this connection we must not overlook the moot point of what is the proper length of time to administer quinin. The period recommended in this paper may be felt to be inadequate, and its extension to the period of ninety days is judged to be safer. Another objection is anticipated in the heavy initial dosage recommended. This may be reduced, if necessary, to 30 grains of quinin after the second day without further modification of the formula. This change is not advised if the patient shows no distress toward the heavier dosage.

It is interesting to relate that in some experiments conducted at a government hospital in connection with the infectivity of malarial mosquitoes with *Plasmodium vivax*, it was observed that among fifteen persons who received initial infection from mosquito bites, the incubation period and the complete symptomatology could be followed perfectly. In every instance in which the period of treatment was less than two and a half months there followed a relapse. Among the latter were included four physicians who had volunteered for the biting experiments. The moral is obvious. Its application is as difficult as human nature is mysterious.

COMMENT BY DR. CARTER

The criticism of the author that the treatment usually pursued for an attack of malaria generally fails to eliminate the infection is true. This is disputed by no one.

It is unquestionably desirable to have a standard treatment in dosage, method of administration and duration of treatment which would (1) give the highest percentage of cures of malarial infections, and (2) be practicable for general administration.

The two most important bench problems of malaria yet unsolved are to find (1) the best means of determining the existence of malarial infection in man, and (2) the best method of eliminating it. This paper is an attempt to formulate the latter.

In my judgment, the basis of Mayne's formula for such standardization is sound, namely, heavy doses and confinement to bed in the beginning of the treatment of an acute attack, and continuation of the treatment after the disappearance of symptoms. As to what should be the preliminary high dosage; how long this should continue; what should be the diminution of dose in the continuation of treatment; whether the treatment should be continuous or intermittent and for how long the treatment should be continued, I have, indeed, opinions which are fairly consistent with this formula, but have not sufficient data for them to warrant their exclusive advocacy.

I do not think it would be advisable to publish this formula as being the method of treatment for the cure of malaria, because (1) we do not know that it is the best; (2) we could not say it was better than a considerable number of other formulas that would be at once brought out, some of which, as those advocating intermittent instead of continuous treatment, are radically different, and (3) it does not, so far as I know, rest on direct observation, giving the percentage of cures from its use, either absolutely or in comparison with other methods.

In 1913, a committee of the Southern Medical Association was appointed to standardize the treatment for the cure of malarial *infection*. It consisted of Craig, Bass, Deaderick, von Ezdorf and Krauss—all good men, unusually good men in that line. No report was made; at least I know of none; and this question was left indeterminate. Bass did formulate a method of treatment, however, for which he claimed much. Deaderick, Krauss and von Ezdorf (I don't know about Craig) were not inclined to admit these claims. Bass[1] had read a paper which, as I recall, embodied much the same views as the one referred to above. He does not now hold his previous opinions of the efficacy of the method of treatment therein advocated.

Within the past three years much clinical experimentation has been done along this line by British physicians, both in England and in the Balkans. I may mention Ross, Stephens, James, Carter, MacFie, D. Thomson and others, men mainly well trained with much malarial experience. They have not been able to agree on any such formula for treatment, and few of them individually make very definite and decided claims for any special treatment.

Stephens, basing his observation on two rather small groups—seventy-two and eighty-seven cases, respectively—concludes that the same method of treatment (in this case 90 grains of quinin in solution on two consecutive days) was decidedly more effective in July

1. Bass, C. C.: South. M. J., May, 1914.

and August than in January to April. In the warm weather 60 per cent. of cures were obtained as against 3 per cent. in cold weather. Cases were accounted cured if there were no relapses either clinical or parasitic within sixty days, blood examinations being made daily.

I mention this just to show how inchoate is the subject from the standpoint of British workers.

I would then regard it inadvisable for the Public Health Service to endorse implicitly *any formula* as a standard for the treatment of malaria in the present state of our knowledge of this subject. I say this although I am in agreement with the basic plan of this formula and in *general* agreement with the details, and I am sure that if it were generally used, many cases would be cured which under the treatment they *do* receive are not cured. I am afraid, however, to recommend that the Public Health Service go on record as endorsing a specific formula for the *cure* of malaria until we know more about it both absolutely and as compared with other methods.

This subject was one of those put down for investigation by the National Malaria Committee ("research, clinical"), if it ever gets started.

PERSONAL OBSERVATIONS REGARDING THE TREATMENT OF GLAUCOMA *

JOHN E. WEEKS, M.D.
NEW YORK

My object here is to give my personal impressions of the various forms of treatment for glaucoma that I have employed during a period of thirty-two years in the active practice of ophthalmology, all of which time I have diligently searched for efficient means to control hypertension.

The principal determining causes of hypertension as I regard them are:

1. Obstruction to the outflow of fluids from the interior of the eye by (*a*) inflammatory products, as the presence of fibrin in the aqueous, blocking the spaces of Fontana, or of non-diffusible substances, such as colloids or albuminoids, which do not readily pass through the filtration spaces (anterior chamber usually deep); (*b*) encroachment of the iris on the spaces of Fontana following increase in the size of lens or increase in the contents of the vitreous chamber (anterior chamber shallow); (*c*) the incarceration of the iris or the capsule of the lens in a cicatrix after traumatism, or wounds made by the removal of cataract or other operation opening into the eyeball (anterior chamber compromised); (*d*) development of iris cysts and tumors, or thickening of the iris; (*e*) increase in volume of the contents of the vitreous chamber by retinal or choroidal hemorrhages, or by intra-ocular growths.

2. Sclerosis affecting the lymph spaces at the sclerocorneal junction, as in buphthalmos or after interstitial sclerokeratitis (anterior chamber usually deep).

3. Increase in intra-ocular secretions, as in abnormal conditions of the vascular system (aortic insufficiency plus extensive temporary increase in arterial tension).

4. Retention of aqueous in the posterior chamber.

In at least 90 per cent. of all patients with "idiopathic" glaucoma, except in infantile glaucoma, there is a history of chronic constipation. The correction of this condition goes far to relieve hypertension.

In regard to range of tension as measured by the tonometer of Schiötz, I have seldom seen a normal eye with a uniform tension less than 12 or more than 27, the usual normal range being from 16 to 25. In pathologic eyes without perforation I have noted a tension of from 1, the lowest, to 130, the highest.

In "idiopathic" glaucoma, very marked variations in tension may take place. Thus, I have noted a tension of 40 in one eye of a patient and 50 in the fellow eye. On the succeeding day the tension was 22 degrees in both eyes, and on use of a 1 per cent. solution of pilocarpin once daily this tension has remained. In the case referred to there is slight nasal contraction of the fields, and the vision is a little less than normal.

MIOTICS

The miotics employed are, of course, pilocarpin and physostigmin (eserin). As adjuvants, jaborandi is used internally, opium at times, and also free catharsis. I have not found advantage in the combination of ethylmorphin hydrochlorid (dionin) with these remedies. The pilocarpin and physostigmin are usually dispensed in a sterile 3 per cent. solution of boric acid to avoid rapid deterioration of the solution. I have never experienced any bad results from the use of these remedies, if I may except a transient hyperemia of the iris in a very few cases after the use of physostigmin. Solutions of pilocarpin, if persisted in for some time, produce irritation of the conjunctiva in a small percentage of patients, but never any disease of the eyes.

Miotics have been employed in the way of a preventive as well as a corrective measure. Pilocarpin in strength of from one-third to 1 per cent. is prescribed in many cases in which the tension is at or near the upper limit of normal, in which the anterior chamber is shallow, and in which there is even slight cupping of the whole or a portion of the disk. The pilocarpin is used once a day, at night, on retiring, rarely twice daily, and the solution is freshly made once in two weeks. The treatment is continued a longer or shorter time, as may appear to be desirable.

It is a routine practice to test the tension of the eyes of all patients by digital palpation. If the tension appears to be above normal, or the history or the appearance of any part of the eye indicates hypertension, present or remote, a tonometric measurement is taken.

In all cases of tension above 25, as determined by the Schiötz tonometer, miotics are resorted to and an endeavor is made to keep the tension at or below that degree. The fields of vision for form and colors are taken from time to time, and the degree of vision is determined.

In regard to the effect of miotics, it has been possible in a number of cases of "idiopathic" glaucoma of various forms to keep the tension at about the upper limit of normal, and to hold it there for many years without deterioration in vision or loss of visual fields (Mrs. H., Rochester, nine years; Mr. C. F., New York, eleven years; and many others). In one case, that of Mrs. McC., after a period of two years of hypertension the tension became subnormal and the miotic was discontinued. Three years have passed, and the hypertension has not returned. In quite a high percentage of cases the hypertension may be controlled for a longer or shorter period, and then the fields and vision begin to fail in spite of increase in strength of the miotic, and operation becomes necessary.

* Read before the Section on Ophthalmology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

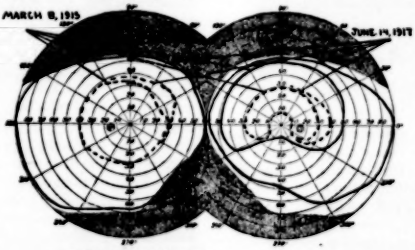
There are but few cases of "idiopathic" glaucoma that are not more or less affected by the instillation of miotics, although it is frequently impossible to bring the tension down within the normal range, namely, from 16 to 25 mm. As an example of the great reduction possible, the following is a case in point:

CASE 1.—Mrs. S. consulted me, Feb. 5, 1919, with a tension of 110; the cornea was hazy; vision was perception of light. She was admitted to the infirmary. A 1 per cent. solution of physostigmin salicylate was instilled every two hours, and a calomel purge was given that afternoon, a saline the following morning, and ⅙ grain of morphin at night. At 2:30 p. m. the following day the tension was 23, and the vision was greatly improved.

In hypertension after cataract or other operation on the eyes, a high percentage of permanent relief is obtained by the use of miotics.

In regard to dosage, the strength and frequency of use is entirely regulated by the necessity, beginning with pilocarpin in 0.33 per cent. solution once or twice daily, increasing to 2 per cent., instilled as frequently as is required, or changing to physostigmin solution (the salicylate being used as a rule) varying in strength from 0.25 to 1 per cent., and instilling it from one to four or five times daily as required. If physostigmin, 0.5 per cent. used three times in the twenty-four hours, does not suffice to keep the tension at or below 25, I insist, with very few exceptions, on operation.

In secondary glaucoma the effect of miotics is seldom so marked as in the "idiopathic" cases. A reduction in tension of from 10 to 20 may often be obtained, but it will probably not be easily attained and is difficult to maintain. Treatment by miotics in these cases, if the hypertension is above 35, is not of much value, as a rule, although there are exceptions.



Fields in Case 3.—Form ——. Red .....

For many years I have made it a routine practice, when time and circumstances permit, to try the effect of miotics in all cases of hypertension before advising operation. There are a number of conditions which may develop which cause me to decide that operation is desirable, and, when convinced that operation is the conservative course to pursue, I inform the patient that he must assume responsibility for the consequences if the advice is not followed. A diminution in the field of vision for form or colors, with or without enlargement of the blind spot, is an urgent sign, as is also a slight positive diminution of vision. It is allowable to permit a low degree of hypertension if no falling off in field for form or colors or diminution of vision can be detected, but such patients must be watched with great care to prevent irreparable damage through unexpected exacerbations in tension. Operation is advised if the patient is found to be inclined to irregularity in the use of the miotics, and in cases of contemplated long absence from efficient observation by a competent ophthalmologist.

Experience has convinced me that early operation is desirable. The degree of vision present when a glaucomatous eye is not in a state of congestion is seldom much better after operation; nor is a contracted field much enlarged. There are, of course, exceptions to this rule, but they are not great in number. Loss of field almost to the fixation point need not deter operation, as the fixation point will be included in the blind portion of the field much more quickly if operation is delayed than if operation is performed. Small retinal hemorrhages do not contraindicate operation if other conditions are urgent.

OPERATIONS

The operations to be employed must be determined by the characteristics of the individual case. Buphthalmos and other forms of "infantile" glaucoma are not, as a rule, satisfactorily treated with miotics, but in some cases miotics act very well.

CASE 2.—Miss A. R., aged 9 months, was brought to my office, Sept. 21, 1909, with buphthalmos affecting the right eye. The cornea was cloudy; the pupil dilated and oval; tension, + 2; vision, apparently, perception of light. Pilocarpin solution, 1 per cent., was instilled twice daily, increased sufficiently frequently to keep the pupil small. The cornea gradually cleared and vision improved. The tension decreased until it was but little above that of the fellow eye. Dec. 17, 1917, tension was a little above normal, vision, fingers at 18 inches. A few days later the buphthalmic eye sustained a blow, and detachment of the retina developed. Tension then fell below normal.

In buphthalmos, paracentesis may be resorted to in the early stage of the condition. When seen shortly after birth, the cornea will be more or less opaque, with stippled surface, except at the periphery. A small paracentesis performed at the limbus, the opening being made patent every five or eight days for a few times, as required, will cause the entire condition to improve. If followed by miotics, the result will often be quite satisfactory. When the patient has reached the age of from 4 to 8 years, trephining is the operation of choice, a trephine not more than 1.5 mm. in diameter being used. The anterior chamber will be deep, and a conjunctival flap of fair thickness can be obtained. A liberal piece of iris should be excised. A satisfactory case is the following:

CASE 3.—Miss Y. C., aged 18 years, came under observation, March 8, 1915. Buphthalmos was present in both eyes; vision, right eye, was fingers at 18 inches, eccentric; left eye 20/20 —; tension by Schiötz tonometer, right eye 63, left eye 46; right disk pale; the fields were as shown in the accompanying chart. March 9, 1915, trephining was done under ether, a 1.5 mm. trephine being used. June 14, 1917, vision in the right eye equaled fingers at 1 foot, eccentric; left eye 20/30 + +; tension, Schiötz, right eye 22, left eye 21. The fields were as shown. There was a relative central scotoma in the field of the right eye.

Neither iridectomy nor the Lagrange operation in buphthalmos is satisfactory because of the extreme thinness of the sclera and cornea, and because of the difficulty of obtaining a filtrating cicatrix without endangering the contents of the globe. The opening after a trephine operation has a tendency to enlarge by stretching. Consequently, a large trephine should not be employed.

In other cases of infantile glaucoma in which the globe is not enlarged, some other form of operative procedure may be employed.

In my practice, secondary glaucoma is encountered in about 4 per cent. of the cases of cataract extraction. In some of these cases the capsule of the lens appears to be the cause, as in the following case:

CASE 4.—Mr. W., aged 65 years, was subjected to combined extraction for mature senile cataract. Hypertension developed three weeks after the operation, which was not satisfactorily controlled by miotics. Tension reached 45 mm. of mercury. About one-fourth of the anterior portion of the capsule of the lens had been removed by the capsule forceps. The capsule at its upper equatorial area was caught in the cicatrix at the corneal limbus and apparently put on the stretch. Two well marked bands of capsule extended from the middle of the incision downward, diverging to the lower margin of the pupil. The tension was but little influenced by miotics. By means of a narrow cataract knife, the bands of capsule were divided. The divided ends separated widely, showing that they were in a state of tension. The hypertension of the globe was relieved and did not return.

It has occurred to me a few times that after a cataract extraction the iris on one or both sides of the coloboma in combined extraction and extraction after preliminary iridectomy has become incarcerated in the angle of the wound. Hypertension has developed subsequently in some of these cases. If the anterior chamber is opened at a suitable place and the columns of the coloboma on the incarcerated side are freely divided, the hypertension will be relieved in the majority of such cases. There are some cases of hypertension following cataract extraction, not due to either of these causes, which may be relieved by operation. In one patient coming to me after operation for the removal of cataract by a colleague, a trephining, made at the outer part of the coloboma, a 1-mm. trephine being used, gave permanent relief. In a case of simple extraction by me, hypertension developed about six weeks after the uncomplicated extraction. In my absence from the city, Dr. Herman Knapp performed the usual iridectomy, permanently relieving the hypertension. The patient was subsequently under my observation for eight years. The tension of that eye remained normal.

In secondary glaucoma accompanying acute or subacute iritis, the hypertension will as a rule subside spontaneously in a few days. At times, operative procedure becomes necessary. In these cases paracentesis, one or more times, followed by opening the wound every second or third day, is usually sufficient. The paracentesis should be made at the limbus, pushing a narraw flap of ocular conjunctiva before the point of the knife, so that the wound at the sclerocorneal margin will be covered when the knife is removed. Rarely an iridectomy upward is required.

The secondary glaucomas that follow sclerokeratitis, or after interstitial keratitis, are not usually successfully treated by a simple iridectomy. In these cases, since the glaucoma follows the partial closure of the lymph spaces at the sclerocorneal junction by the sclerosing process following the inflammation, a filtering cicatrix must be obtained by some form of operation in order to give permanent relief from the hypertension. Such a filtering cicatrix *must* be obtained in virtually all chronic cases in which the anterior chamber is deep.

The largest percentage of cases of glaucoma is made up, of course, of the "idiopathic" cases, conveniently described as the acute, subacute and simple chronic cases. The acute cases frequently present a very high tension, ordinarily (if not treated) running a course of from two to three weeks, when the tension sinks approximately to the upper limit of normal, with more or less loss of vision. As a rule, I do not find it necessary to operate at the height of an acute attack, as in by far the greater number of cases the tension can be greatly lowered in a few hours by treatment. The treatment that is usually employed by me is, locally, physostigmin, 1 per cent., every hour, if tolerated (exceptions are very rare); systemically, a calomel purge, morphin hypodermically, and light diet. If after twelve hours there is no diminution in the tension, operation is performed. If the tension is subsiding, operation is postponed until the eye has become as nearly normal as possible, when a broad iridectomy is performed. This operation is with few exceptions all-sufficient in these cases. Posterior sclerotomy before the iridectomy is seldom necessary.

For the subacute and simple chronic cases of glaucoma I prefer an operation that will permit of the formation of a filtering cicatrix. Quite a large number of operations with this aim in view have been devised and practiced more or less extensively. Among them we may mention the operations of Colonel Elliot, Lagrange, Holth after 1908, Hubert, Verhoeff, and the operation of Holth before 1909 (iridencleisis). Ophthalmology owes much to Colonel Elliot and Professor Lagrange for the operations they have advocated, and for the extensive study and painstaking elaboration of their work. I have performed the Elliot trephining operation fifty-eight times. Unfortunately, I had intra-ocular hemorrhages follow in two cases, iritis in six cases, detachment of choroid in two cases, return of tension from blocking of the opening in a number of cases, and late infection in two cases. At present I limit the use of this method to buphthalmos, some cases with deep anterior chamber, and to cases of chronic simple glaucoma, mostly with relatively low hypertension. The Lagrange operation, which I have performed 269 times, is relied on for the forms of glaucoma other than those reserved for the Elliot operation. The operation is performed as described by Lagrange, except that the incision is seldom more than 5 mm. long (Lagrange advises 7 mm.). The shorter incision is employed to avoid the danger of prolapse of the head of the ciliary body or of the lens into the wound, and to lessen the possibilities of escape of vitreous. In this series of cases there has been deep intra-ocular hemorrhage once. The openings have been occluded by the falling forward of the head of the ciliary body in three. There has been loss of vitreous in three cases. Hypertension has recurred in a small percentage of dispensary cases because of inability to have the after-treatment followed up; but in private cases, hypertension has recurred to an extent to nullify the result in only four instances. There has been but one light case of iritis and no case of late infection.

In employing this operation the after-treatment is very important. Massage should be employed daily, beginning forty-eight hours after the operation in all cases in which the tension is not subnormal, for the purpose of gently forcing a very small quantity of the aqueous through the scleral opening, causing the conjunctiva covering the opening to bulge slightly. The massage should be continued a few days or weeks, as

is found necessary, to secure a filtering cicatrix. The patient can be readily instructed how to perform the massage, and the after-treatment can then be conducted without the presence of the surgeon. The results in private patients have been most satisfactory. It is my opinion that the Elliot operation will give a higher percentage of permanent relief of hypertension in patients who cannot have satisfactory after-treatment, as in dispensary practice; but in private practice a greater percentage of satisfactory results, in the class of cases mentioned, can be obtained by the Lagrange method.

Eyes with "idiopathic" glaucoma of the nonacute type are subject to degenerative changes even after the correction of the hypertension, and we must not expect as high a percentage of such eyes to retain the vision present after a successful operation as would obtain after iridectomy for other conditions. The results of early operation are the most satisfactory. Eyes with advanced degenerative changes, particularly the chronic cases in which atrophy of the optic nerve is considerable, not infrequently continue to degenerate, but more slowly, after hypertension has been completely and permanently relieved.

46 East Fifty-Seventh Street.

ABSTRACT OF DISCUSSION

Dr. William Campbell Posey, Philadelphia: I believe that operation should be performed: 1. In all cases of acute and subacute glaucoma and in all chronic cases on the manifestation of any inflammatory glaucomatous symptoms. 2. In all cases of chronic glaucoma in which there is doubt of the patient's cooperation in the persistence in the miotic treatment throughout the remainder of life. This includes practically all hospital cases and such private cases as may be of a weak and vacillating disposition. 3. In all cases of chronic glaucoma when the patient resides at such a distance from proper ophthalmic care that he is unable to report at sufficiently frequent intervals for the supervision necessary in the proper and safe carrying out of the miotic treatment, or for operation in the event that inflammatory symptoms arise. 4. In all chronic cases under fifty-five years of age, an operation on the most affected eye is advised, miotics being employed in both the operated and unoperated eye for the remainder of life. Operation on the second eye should follow if subsequent observation shows that vision is maintained better in the operated than in the nonoperated eye. 5. In all cases of chronic glaucoma, without regard to age or the development of the disease, in which miotics have been given a faithful trial for at least six weeks or two months, as evidenced by the constant maintenance of pupillary contraction to almost pinpoint size, and in which vision and the field of vision show progressive deterioration.

After a very limited experience with the Lagrange operation (eight or nine cases) and a wider, but still in comparison with Dr. Weeks a restricted experience with the trephining operation, I have returned to iridectomy, as both the Lagrange and Elliot operations seemed, in my hands, at least, to be attended with greater danger to the eyes. I speak particularly or remotely after trephining. There are certain cases of secondary glaucoma in which the trephining operation is in my judgment to be preferred to other forms of operative procedure, and I agree with Dr. Weeks in thinking it the operation of choice in buphthalmos.

Dr. E. E. Blaauw, Buffalo: Ellett refers to the silent iritis. Diagnosis of silent iritis can be made, but there is no other symptom whatever. Atropin should be used but I do not know for how long. Dr. Knapp instills atropin right after the operation. The question is, should we do a partial iridectomy or a complete iridectomy. Silent iritis is due to chemicals in the aqueous.

Dr. D. T. Vail, Cincinnati: Conjunctivitis which almost simulates trachoma, renders the continuous use of a drug prohibitive. In one case having this to contend with, and finding it impossible to carry out an operative plan of treatment, I made up a prescription of eserin in the usual way and incorporated in that 1 grain of camphor with sufficient alcohol to dissolve the solution and told the patient to use it and report. He came back after three months without renewal, and the conjunctiva was free from any sign of those follicles which are so characteristic of eserin where it irritates. Since then I prescribe 1 grain of camphor, with sufficient alcohol for solution. I have not used the eserin since. If we are to believe what we are told by Crookes and others, glaucoma following cataract is sometimes due to epithelial cells, or transplantation of them into the anterior chamber, it spreads, and ultimately lines the cornea and the structures behind it, resulting in an inveterate form of glaucoma, which ends in enucleation. Since returning from India I have employed the Graefe knife which performs a double function. First, we avoid the introduction of these cells to a large extent, and having introduced the knife into the anterior chamber, laying it horizontal to the tangential surface of the cornea, we can find the extreme edge of the angle, something which cannot be done with a keratome.

Dr. L. Webster Fox, Philadelphia: We are greatly indebted to Dr. Weeks for his valuable contribution on a subject that has placed all ophthalmic surgeons on their mettle. I wish to act as his supporter in many of the details he has given us, both from the medicinal and surgical viewpoint. We must look on glaucoma cases with fear and trembling. We are dealing with a condition which presents many pathologic phases, and if the patient lives long enough, the case generally ends in degeneration of the vision and eyeball. I have scheduled my cases under four heads: First, cases where there is only a suspicion of glaucoma, and which require internal and local treatment. Second, cases in which local medical treatment (instillations of pilocarpin or eserin) fails to hold the field of vision, and in these cases we resort to operative procedure. I prefer the Elliot method here. If it fails to hold I supplant it by an anterior sclerotomy, and this operation may be repeated until the tension is not only reduced, but kept down. Third, the Lagrange operation, in my experience, is preferable to the Elliot in such cases where the visual field has decreased suddenly and where cupping of the disk is manifest. Fourth, a perfectly performed operation is that where the keratome has been used with a long incision, well back in the sclera, combined with a broad iridectomy. To me the keratome is the one instrument that has so thoroughly proved it value that I am surprised to hear criticism of its use. I only use a Graefe knife in the sclerotomy and Lagrange methods.

Dr. Walter R. Parker, Detroit: What operation shall we do when we are forced to operate? If any of you had glaucoma, your operation of choice would be an iridectomy. We all know, however, that in some cases equally perfectly performed iridectomies do not give equally good clinical results. If we can select the cases which can be benefited by iridectomy, and leave the other cases to Lagrange or trephining, or other operations, then our operations would succeed better. I have divided these cases into anterior and posterior simple glaucoma. As you all know, there are two general lines of flow of the lymph in the eye, the so-called posterior route and the anterior route. With patulous lymph spaces, the flow will be interior, and there will be a tendency for the lens to follow this flow, and the anterior chamber will be lessened in depth. On the other hand, if the anterior spaces are blocked, and the posterior are patulous, the anterior chamber will remain relatively deep. If the anterior spaces are patulous, the iridectomy will do no good. If the posterior spaces are involved an iridectomy is contraindicated; on the other hand, if the anterior are involved, then it is indicated. I have tried to classify all my simple cases into one or another of these groups. I cannot give you the increase offhand but the number of cases was much increased after the iridectomies, and held its own in the trephinings.

DR. JOHN E. WEEKS, New York: In employing this operation the after treatment is very important. Massage should be employed daily, beginning forty-eight hours after the operation in all cases in which the tension is not subnormal, for the purpose of gently forcing a very small quantity of the aqueous through the scleral opening, causing the conjunctiva covering the opening to bulge slightly. The massage should be continued a few days or weeks, as is found necessary, to secure a filtering cicatrix. The patient can be instructed how to perform the massage, and after treatment can then be conducted without the presence of the surgeon. The results in private patients have been most satisfactory. It is my opinion that the Elliot operation will give a higher percentage of permanent relief of hypertension in patients who cannot have satisfactory after-treatment, as in dispensary practice; but in private practice a greater percentage of satisfactory results, in the class of cases mentioned, can be obtained by the Lagrange method. Eyes with "idiopathic" glaucoma of the nonacute type are subject to degenerative changes even after the correction of the hypertension, and we must not expect as high a percentage of such eyes to retain the vision present after a successful operation as would obtain after iridectomy for other conditions. The results of early operation are the most satisfactory. Eyes with advanced degenerative changes, particularly the chronic cases in which atrophy of the optic nerve is considerable, not infrequently continue to degenerate but more slowly, after hypertension has been completely and permanently relieved. Dr. Fox regards glaucoma as a serious condition. Since I have adopted the method described in my paper I feel certain of relieving hypertension in from 60 to 70 per cent. of the cases. Referring to what I would prefer personally, or choose in an operation on my own eyes, I never recommend an operation that I would not consent to or would not have made on my own eyes under similar circumstances.

THE SOLUBILITY OF INTESTINAL IPECAC PREPARATIONS*

TORALD SOLLMANN, M.D.

CLEVELAND

The reputed value of ipecac against intestinal amebas was originally based on its oral administration. Its nauseant and emetic actions, however, constituted serious drawbacks to its use. The coating of pills with salol is not always satisfactory, although, with due care, it appears to be quite feasible.[1] The hypodermic injection of emetin hydrochlorid avoids the local actions; but used thus, it often fails to rid the patient of amebas, especially if he is a chronic carrier. Attempts have therefore been made to solve the problem by the use of emetin compounds that, while insoluble in the stomach, would be soluble in the intestine. The basis of these attempts lies in the difference between the reaction of the stomach and that of the intestine.

EMETIN BISMUTH IODID

Emetin bismuth iodid is described in New and Nonofficial Remedies and a further description is found in the report of the Council on Pharmacy and Chemistry for 1918.[2] Emetin in this form is only slightly soluble in water and dilute acids, but dissolves quite freely in 1 per cent. sodium bicarbonate. It is evidently somewhat soluble in the stomach, and accordingly produces some digestive disturbances, although these are much less severe than with ipecac proper.[3]

ALCRESTA IPECAC

Alcresta ipecac is an adsorption product of ipecac and fullers' earth (hydrous aluminum silicate) especially prepared according to the method of J. U. Lloyd, who discovered that practically all alkaloidal salts are adsorbed by this powder and are thereby rendered insoluble in neutral or acidulated water.[3] This finding was confirmed by Gordin and Kaplan.[4] The alkaloids can again be dissolved by treatment with chloroform in the presence of fairly strong alkalis.

Tablets of alcresta ipecac were described[5] in N. N. R., 1917, on the basis of the claims of the manufacturers that their alkaloids "are physiologically inert as long as they remain within the stomach, and are rendered active when set free in the alkaline media of the intestine." This was interpreted to mean that they are insoluble in the reaction of the stomach, but become soluble in the intestine.

RELATIVE SOLUBILITY OF EMETIN BISMUTH IODID AND ALCRESTA IPECAC IN DIGESTIVE SOLVENTS

An attempt was made to demonstrate the assumed behavior of these preparations in the stomach and the intestine. The gastric reaction was represented by 0.2 per cent. hydrochloric acid; the intestinal reaction by 1 per cent. sodium bicarbonate.

The experiments were made as follows: The powders were shaken thoroughly with the solvent, filtered, and the filtrate acidulated with hydrochloric acid, if necessary, and tested with mercuric potassium iodid (Mayer's reagent). Solution of the alkaloids is indicated by the occurrence of a turbidity or precipitate when the reagent is added.

TABLE 1.—PRELIMINARY COMPARISON OF THE SOLUBILITY OF EMETIN BISMUTH IODID, AND OF IPECAC ADSORPTION PRODUCTS

	Solubility in 0.2 % Hydrochloric Acid	Solubility in 1 % Sodium Bicarbonate
Emetin bismuth iodid (0.05 gm. + 10 c.c. of solvent)	Slight	Very considerable
Ipecac—Lloyd's reagent (2 c.c. 20 % tincture, 10 c.c. 0.2 % hydrochloric acid, 1 gm. Lloyd's reagent)	None	Very slight
Ipecac—animal charcoal (as preceding, except that the charcoal is used in place of Lloyd's reagent)	Considerable	Very slight

The details are shown in Table 1. Briefly, the experiments showed that emetin bismuth iodid is almost but not quite insoluble in the acidity of gastric juice, and that it is freely soluble in the alkalinity of the intestinal juice. This is as was expected. The adsorption product of ipecac and Lloyd's reagent, however, was insoluble not only in the acid medium but also in the bicarbonate. Charcoal, incidentally, did not adsorb the alkaloids effectively even from acid solution.

The insolubility of the adsorption product in bicarbonate seemed so important a contradiction to the clinical use of the product that the investigation was extended to the commercial tablets, and was modified in various directions.

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* From the Department of Pharmacology of the Western Reserve University School of Medicine.

* The investigation was supported by a grant from the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association.

1. Simon, S. K.: Comparative Value of Ipecac and Its Alkaloids in Treatment of Intestinal Endamebiasis, J. A. M. A. **71**:2042 (Dec. 21) 1918.

2. Report on Emetin Bismuth Iodid, J. A. M. A. **71**:2013 (Dec. 21) 1918.

3. Lloyd, J. U.: J. Am. Pharm. A. **3**:625, 1914; **5**:381, 1916.

4. Gordin and Kaplan: J. Am. Pharm. A. **3**:627, 1914.

5. They were dropped from N. N. R. during that year because of "exaggerated, misleading and harmful" therapeutic claims (Report on Alcresta Ipecac, J. A. M. A. **69**:1373 [Oct. 20] 1917.)

SOLUBILITY OF ALCRESTA IPECAC IN ALKALINE SOLVENTS

Three specimens of alcresta ipecac tablets were used in these experiments. One specimen was submitted by the manufacturers in 1915; the others were purchased recently in Chicago and Cleveland. The statements that follow may be regarded as holding true of all three specimens, unless exceptions are mentioned. Several specimens of emetin hydrochlorid were used for purposes of comparison.

It may be mentioned that 0.2 per cent. and 0.5 per cent. hydrochloric acid fail to dissolve any of the alkaloid, even on incubation; that is, the filtrates are unchanged by the mercuric potassium iodid reagent.

SOLUBILITY IN SODIUM BICARBONATE

The alcresta ipecac samples were powdered and mixed with from 0.5 to 1 per cent sodium bicarbonate, from 10 to 100 c.c. per tablet, and filtered either at once or after being allowed to stand up to four days.

The filtrate (which was always distinctly alkaline to litmus) was then acidulated with hydrochloric acid and tested for dissolved alkaloids by the mercuric potassium iodid reagent. The results (Table 2) were

TABLE 2.—SOLUTION OF IPECAC ALKALOIDS IN SODIUM BICARBONATE

Preparation	Dilution	Concentration of Sodium Bicarbonate	Length of Contact	Result with Merc. Pot. Iod.
Emetin HCl.....	1:100,000	1%	Short	Marked turbidity
Emetin HCl.....	1:100,000	Supersaturated	Overnight	Marked turbidity
Alcresta tablets. Samples	1 tablet per c.c.			
All three.....	100	1%	1 day	Clear
Cleveland.....	10	0.5%	1 day	Clear
Cleveland.....	10	1%	Short	Clear
Cleveland.....	10	1%	1 day at 39 C.	Clear
Cleveland.....	10	1% + 0.5% bilin	1 day at 39 C.	Clear
All three	10	1%	4 days	No change at once, but slight turbidity on standing

absolutely negative, with the possible exception of the specimens that had stood four days, in which a part of the bicarbonate may have been converted into carbonate.

Theoretical objection could be made to these experiments on the assumption, first, that emetin is liberated, but is insoluble in bicarbonates, and second, that the reagent is too insensitive to reveal small quantities of dissolved emetin.

Neither assumption is tenable. As for the solubility of emetin in bicarbonate: the experiments of Table 2 show that emetin is sufficiently soluble in bicarbonate for the solution to give a marked precipitate with Mayer's reagent. In fact, a 1:10,000 solution of emetin is not precipitated by the addition of sodium bicarbonate; whereas sodium carbonate or hydrate produce turbidity. Stronger solutions were not tried. The delicacy of Mayer's reagent is such that a drop added to 5 c.c. of the emetin hydrochlorid solutions gives turbidity with a 1:100,000 solution and precipitation with a 1:10,000 solution. It should also be noted that the addition of bile salts does not increase the solubility of the alcresta ipecac in bicarbonate solution.

There is a further possibility, namely, that the emetin is liberated by the bicarbonate from the adsorbent, but for some reason fails to dissolve. This assumption is vague, and even if tenable, there would seem to be no practical advantages in "liberating" an alkaloid, except for the purpose of dissolving it. However, to dispose of the suggestion, and to check up the results, the alcresta ipecac-bicarbonate mixture or the residue remaining after the filtration of the bicarbonate solution was extracted with ether. The ether was separated, filtered and evaporated, and the residue taken up with dilute acid and tested with Mayer's reagent. The results (Table 3) are uniformly negative and confirm that the emetin of the alcresta ipecac-bicarbonate mixtures is also insoluble in ether.

TABLE 3.—ETHER EXTRACTS OF ALCRESTA IPECAC-BICARBONATE MIXTURES

Alcresta Tablets (1 per test)	Bicarbonate solution (c.c.)	Concentration of Bicarbonate	Length of Contact	Ether Extract of Mixture or Residue	Result with Mayer's Reagent
All three.....	10	1%	4 days	Residue	0
All three.....	10	1%	Short	Mixture	0
All three.....	100	1%	1 day	Mixture	0
Cleveland.....	6	0.5%	1 day	Residue	0

SOLUBILITY OF ALCRESTA IPECAC IN STRONGER ALKALIS

It appeared from these experiments that the assumption of the intestinal liberation of emetin from alcresta ipecac is untenable. It was therefore thought that a test of the effect of somewhat stronger alkalis on alcresta ipecac might prove instructive. For this purpose, the residues remaining after the fruitless extraction with bicarbonate were treated successively with sodium carbonate, added to 0.5 or 1 per cent., and then with sodium hydroxid, added to 0.5 per cent. The mixtures were extracted at each stage with ether, and this was filtered, evaporated, acidulated and tested as usual. The results are shown in Table 4. They indicate that the emetin, although not liberated by the sodium bicarbonate, is indeed liberated to some extent by sodium carbonate, and much more by sodium hydroxid.

TABLE 4.—SOLUBILITY OF ALCRESTA IPECAC IN STRONGER ALKALIS *

Alcresta Tablets	Sodium Bicarbonate, 1%	Sodium Carbonate 0.5 to 1% to Residue	Sodium Hydroxid 0.5% to Residue
All three specimens 1:10 c.c. 1915	Clear	Slightly turbid	Large precipitate
Chicago	Clear	Very slightly turbid	
Cleveland	Clear	Clear	
	Clear	Considerably turbid	

* Reaction of ethereal extracts of the solutions as stated in the columns, with Mayer's reagent.

PRECIPITATION OF ALKALINE EMETIN BY LLOYD'S REAGENT

The assumption that alkaline emetin is soluble in the presence of Lloyd's reagent was further tested directly by shaking alkaline solutions of emetin with Lloyd's reagent. It was found that this removed the alkaloid just as completely as from acid mediums, and rendered it insoluble, not only in watery solutions, but even in ether.

The experiments were made by adding alkalis to a 1:100,000 solution of emetin, till these contained 1 per cent. respectively of sodium bicarbonate, sodium carbonate and sodium hydroxid.

The solution in bicarbonate was clear; that in carbonate had a slight precipitate; that in hydroxid was slightly turbid, with a rose tinge.

Half of each sample was shaken with Lloyd's reagent. The reaction remained alkaline to litmus in

every case. Samples of the mixtures were then filtered, acidulated and tested with Mayer's reagent. The remainder of each mixture was then shaken out with ether, the ether filtered, evaporated, acidulated and tested with Mayer's reagent.

TABLE 5.—LLOYD'S REAGENT OF ALKALINE SOLUTIONS OF EMETIN *

	Sodium Bicarbonate	Sodium Carbonate		Sodium Hydroxid	
	Direct Test	Direct	Ether Ext.	Direct	Ether
Mixtures without Lloyd's reagent	Marked turbidity	Turbid	Considerably turbid	Turbid	Considerably turbid
Mixtures with Lloyd's reagent	Clear	Clear	Clear	Clear	Very slightly turbid

* Mayer's test of dissolved alkaloid applied to the acidulated filtrates.

The results, shown in Table 5, prove clearly that Lloyd's reagent binds emetin in alkaline solution.

ACTION OF IPECAC ALKALOIDS WITHOUT SOLUTION

When the insolubility of the alcresta ipecac alkaloids became apparent, this information was communicated to the manufacturers. In their reply they conceded this insolubility and added: "We do not state that the ipecac alkaloids are soluble in a solution of the alkalinity of intestine, but only that they exert their physiological effect in the intestine and, as you of course understand, solubility in water is not necessary in order to bring about absorption from the intestinal tract."

These statements cannot be accepted. I doubt very much whether any substance can be absorbed, undissolved, from the intestine. Solubility in water, of course, has no bearing on the case, for I have aimed to imitate the solubility characters of the intestinal fluid.

It appears equally doubtful whether, undissolved, insoluble and adsorbed emetin can kill amebas. I tried to approach this problem by testing the toxicity to earthworms; but the low toxicity of emetin for these animals (they survive 1:10,000) rendered this impracticable.

The pharmacologic evidence indicates quite strongly that the emetin-alcresta ipecac is quite inactive in the digestive tract of dogs. Fantus[6] found that a doubled fatal dose of ipecac produced no effects of any kind when mixed with fullers' earth. Eggleston and Hatcher[7] likewise found no effects whatever from doses of alcresta ipecac that would have been fatal had a pure ipecac been administered.

This is as far as the positive evidence at present extends. Ordinarily, it would not be expected that a substance that is quite insoluble in the intestine, and that has completely lost its effects on the intestinal cells, which are ordinarily very sensitive to it, should still be effective on amebas, which are ordinarily affected only by high concentrations. Such a contradiction should demand a very careful and critical reexamination of the clinical evidence. As I am not in a position to undertake this, I must leave the subject in this incompleted state.

CONCLUSIONS

Emetin bismuth iodid is only slightly soluble in fluids of the acidity of the stomach, but freely soluble in fluids of the alkalinity of the intestine. These findings agree with the clinical data, namely, that it is an effective amebicide, but is not altogether devoid of gastrointestinal irritation.

The alkaloids of alcresta ipecac are entirely insoluble, both in acid and alkaline solutions of physiologic concentration. The solubility is not improved by the addition of bile salts or of albumin.

The pharmacologic literature of alcresta ipecac confirms that the emetin remains entirely inactive.

6. Fantus, Bernard: Fullers' Earth; Its Adsorptive Power and Its Antidotal Value for Alkaloids, J. A. M. A. **64**: 1838 (May 29) 1915.
7. Eggleston and Hatcher: J. Pharmacol. & Exper. Therap. **7**: 241, 1915.

RELATION OF TEETH, TONSILS AND INTESTINAL TOXEMIAS TO DISEASES OF THE EYE *

GEORGE HUSTON BELL, M.D.
Attending Surgeon, New York Eye and Ear Infirmary (Eye Department)
NEW YORK

The presence and fatality of diseases whose essence is toxemia make them a subject of prime importance to the whole medical profession. I have selected the subject of focal infections for this paper, for the reason that it is a field in which I have long been interested, having read a paper[1] on this subject before the New York Institute of Stomatology, at the New York Academy of Medicine, in October, 1910. My belief has grown stronger and stronger that there is not sufficient attention paid to focal infections as a real cause of diseases of the eye. The epoch-making work of Rosenow[2] on the transmutation and selective localization of pyogenic organisms in the various tissues of the body has revolutionized some of our ideas of etiology and pathology. The experimental and clinical investigations of Brown and Irons[3] have been especially valuable to us, and we know now that the eye may suffer from such infections, as well as joints, muscles, nerves and blood vessels. Wescott,[4] Haskins,[5] Harrison[6] and others have recently presented interesting articles in this connection.

What I now wish to do is to bring to your attention the grouping of the most potent focal infections which we encounter in the practice of ophthalmology. For the lack of a better classification I call them the "three T's," which stand for teeth, tonsils and toxemia of the intestinal tract.

Every patient who comes to my office must stand the "acid test" of the three T's, and the same routine is carried out, as far as possible, in my clinic at the New York Eye and Ear Infirmary. It takes only a few minutes to subject patients to this examination, provided there is a laboratory man at hand, yet how often it is overlooked and forgotten. If one has the three T's well in mind constantly, there is no chance to overlook any of the great sources of focal infections.

* Read before the Section on Ophthalmology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.
* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author or by THE JOURNAL on receipt of a stamped addressed envelop.

1. Bell, G. H.: Ocular Manifestations of the Peripheral Affections of the Fifth Cranial Nerve, M. Rec. **79**: 863 (May) 1911.
2. Rosenow, E. C.: Iritis and Other Ocular Lesions: on Intravenous Injection of Streptococci, J. Infect. Dis. **17**: 403, 1915.
3. Brown and Irons: The Aetiology of Iritis, Tr. Amer. Oph. Soc. 1916, p. 495.
4. Wescott, C. D.: Inflammations of the Eye and Focal Infections, Railway S. J. **22**: 457, 1916.
5. Haskins, W. H.: Diseases of Eye in Focal Infections of the Teeth, Dental Cosmos **58**: 1039, 1916.
6. Harrison, W. G.: Probable Rôle of Teeth and Tonsils in the Etiology of Inflammatory Eye Diseases, Am. J. Ophth. **1**: 660 (Sept.) 1918.

The ramifications of the three T's are so interwoven that it is impossible for me to dissociate them. In thinking of one in connection with a patient the other two always come into my mind. In other words, they go hand in hand. This paper is written with the understanding that, when necessary, syphilis, gonorrhea, and an occasional sinus or tuberculous trouble must be eliminated or excluded.

THE TEETH

Much has already been written, and much more can be written about dental infections as a cause of diseases of the eyes. Too much stress cannot be laid on a thorough examination of the teeth, which includes: (1) an inspection of the mouth; (2) palpation of the gums, and (3) roentgenograms of all the teeth, dead or alive, pivots, arches and bridges.

Barker[7] calls attention to the fact that "serious arthritis, osteitis, osteomyelitis, periostitis, myositis, embolic pneumonia, pleuritis, endocarditis, neuritis, neuralgia, iritis, anemia, septicemia and pyemia may, in certain cases, have their origin in oral sepsis." And I believe there is a growing tendency to look on the same etiologic factor as contributory in many instances of chronic degenerative diseases like arteriosclerosis and arterial hypertension.

Case 1.—A man, aged 22, came to my clinic at the New York Eye and Ear Infirmary, July 15, 1917, with plastic iritis in both eyes. When first seen, both pupils were contracted and the aqueous was cloudy. There was severe pain in both eyes, considerable exudation in the left pupillary space, and marked ciliary tenderness and injection. The patient was ordered into the hospital at once and had the usual treatment for iritis. The Wassermann test was ++++. Inunctions were started. As the teeth were badly decayed, fourteen of them were extracted during his first ten days in the hospital. Improvement was so rapid that I decided to discontinue the inunctions. The patient made a rapid recovery, leaving the hospital at the end of four weeks. He had gained 14 pounds in weight in the nine weeks that elapsed after he had the teeth extracted. His vision is now normal in both eyes. He was given seven inunctions while in the hospital. I proposed to treat him for constitutional syphilis, but wanted first to see what would happen after the removal of these septic roots, before going on with the treatment for syphilis. The result was most happy. I showed this patient to the Section on Ophthalmology at the New York Academy of Medicine, Nov. 19, 1917.

Case 3.—L. F. C., aged 37, sent to me by Dr. H. H. Forbes, July 27, 1917, was complaining of failing vision in the right eye. With correction, he had vision: O. D., 20/200; O. S., 20/20. On examination, I found that he had an exudate choroiditis and large floating opacities in the vitreous of the right eye. His tonsils had been removed by Dr. Forbes. On examining his mouth, I found his gums very much inflamed, and on the right side, at the root of one of the molars, there was a gum boil. There was also a bridge in his mouth. I advised an immediate roentgenogram of his teeth, which showed, for one thing, that there was an old root in the gum of one of the central incisors, which had been pulled long before; also that there was an abscess cavity at the root of two of the upper molars on the right side. The root of the incisor was extracted; also two molars were pulled, and the bridge was removed. All of this work was done in the summer of 1917. The patient's Wassermann test and urine were negative, and he had no internal treatment. The man had been improving ever since the dental work was done; July 25, 1918, he came to me with a vision in the right eye of 20/20 with correction.

Any part of the eye may be attacked as a result of dental infection, but by far the greatest number of cases show the iris, ciliary body, choroid or cornea to be affected.

Lewis[9] reports two cases of retinal hemorrhage due to bacterial toxins, and sets forth a new conception, namely, that in these cases there occurs an absorption into the blood of a soluble protein poison, usually given off from focal infections, which has a solvent effect on the intercellular cement substance of the cell wall, and that the hemorrhage is not due to alteration of the blood pressure, but to local lysis in the wall itself. It seems to me that Lewis' theory of this new pathology is a correct one, and will in the future explain many obscure cases of recurrent retinal hemorrhages which, in the past, have been diagnosticated as due to tuberculosis.

In operations on the eyeball when pyorrhea alveolaris is present, or when I suspect any trouble with the teeth, I always begin by referring the patients to an up-to-date dentist, who at once starts his treatment. When the dentist has finished with the patient, I generally wait from four to six weeks before operating, so as to try to eliminate all toxins from the system. Even in glaucoma I wait, if it is possible, to eliminate the three T's. All of this may seem heroic, but let me assure you that we are dealing with an arch enemy not to be trifled with, and my success in treating patients along these lines impels me to go forward.

THE WAY TO "GET RIGHT" ON THE DENTAL QUESTION

To my mind, the way to get at the dental problem correctly is to start with children in the schools, as complete and proper mastication cannot take place unless the mouth is in a healthy condition. Education along dental lines and in dental hygiene is just as necessary as education of the mind. Children who never use a tooth brush are constantly coming to my clinic. All they get here in our public schools in the way of dental hygiene is what they call "the tooth brush drill." What we really need here in New York and elsewhere are dental hygienists or dental dressers, to inspect the mouths of these schoolchildren regularly and systematically; to detect irregularities of the teeth; to detect cavities by probe and mirror; to chart defects correctly; to select temporary teeth for extraction; to clean the scale from the teeth; to extract the temporary teeth, and to apply various tonics to the gums when inflamed and, above all, to educate the children in "dental hygiene." Women who do this work are given a nine months' course at Columbia University; then they stand an examination and are given a diploma as "dental hygienists." These dental dressers are, of course, to work under the supervision of some up-to-date dentist who can inspect their work from time to time. In this way the city would not be put to any great amount of expense, and the children would be well taken care of and receive scientific treatment. This work is all the more important when we stop to consider that at least 70 per cent. of our schoolchildren have defective teeth, that all defective teeth are injurious to health, and that some of them are a deadly menace to their owners.

EYESIGHT OF SCHOOLCHILDREN

The dental dressers could also be taught to test the vision of all schoolchildren regularly, and those with defective eyesight could be referred to the clinics, as

7. Barker, L. F.: Oral Sepsis and the Digestive Apparatus, South. M. J. 7: 481 (July) 1918.

9. Lewis, F. P.: A Bacterial Toxin as the Cause of Retinal Hemorrhage, J. A. M. A. 70: 1813 (June) 1918.

nothing handicaps a child's progress in education more than poor eyesight. Hints and pamphlets on the care of the eyes and the teeth should be published for distribution among the schoolchildren and the mothers. The pamphlets could also outline the diet for these children, and call the attention of the mothers to the harmful effects of sugars and candies.

The publishing of the pamphlets, the issuing of charts to be hung in the schoolrooms, and the preparing of exhibits to be used in the schools are some of the things which the dental dresser could do.

These suggestions of mine are all educational, and should be a part of the regular course of every child from the kindergarten until the day of graduation.

Diseases of middle life are fast increasing. They are microbic, of a chronic, recurring character, and are carried into the blood stream from a few foci, the mouth being the source of the greatest danger.

THE TONSILS

The tonsils, on account of their position and structure, are more prone to infection than almost any other organ in the body. Because of their position, they come in contact with the various species of bacteria in the mouth cavity. More important than this, however, is the deposition of these bacteria with the food, in the lumina of the crypts. They therefore receive and transmit in many cases some infectious process.

Ziegler[11] reported a case of marked papilledema in a child, which was persistent for over a year, and which subsided and cleared up after the removal of the tonsils. This septic condition of the tonsils was well illustrated in a case of a physician which King[12] reported. The patient had arthritis and heart and kidney trouble with episcleritis. He was unable to attend to his professional duties. The whole systemic involvement was cleared up by the use of vaccines and the enucleation of the tonsils. I had the pleasure of seeing this physician eighteen months after operation. He had resumed his practice and had had no recurrence of any of his old troubles. He had gained in weight and was feeling fine.

When the tonsils are involved, anything less than the radical treatment is of little value. This was thoroughly demonstrated by Case 5.

CASE 5.—Miss C. R., who first came to me, July 5, 1918, complained of "red eyes," as she called it, and had been under treatment for several years by two competent oculists. There was at this time marked redness and congestion of the bulbar conjunctiva, with some edema and some follicles on the palpebral conjunctiva. I examined the patient's eyes for refraction, and found that her error had been properly corrected. Looking her over for the three T's, I found that her teeth were excluded, but on examining her throat, it developed that she had two large, juicy tonsils which projected way beyond the pillars of the fauces. She was told that nothing could be done for her until her tonsils were removed. That day, the first time I had ever seen her, she was sent to consult a nose and throat specialist, and her tonsils were enucleated the next day. Her progress has been very marked ever since the operation, and now, six months afterward, "the red eyes" have disappeared, and she no longer has any chronic conjunctivitis. She remarked to me, "You are the first doctor who ever examined my tonsils." Think of it, a woman 26 years old with a low grade conjunctivitis, which had extended over a period of several years, who had never had her throat examined!

Osborne[13] thinks that a very large proportion of thyroid disturbance is caused by mouth and throat infections.

Recently Gardiner[14] has called attention to the fact that he has seen two typical cases of exophthalmic goiter which were permanently cured after one year's observation with the rest cure and the enucleation of the diseased tonsils. He also states that Morse was able to cultivate *Streptococcus viridans* from the thyroid glands removed from two typical cases of goiter.

Errors of diet and pyorrhea alveolaris are the starting points of nearly all cases of hyperacidity, hypoacidity and toxemia of the intestinal tract. How often is the dietetic condition discussed with our patients unless they have some obscure eye disease? How often do we demand of new patients coming to our offices an examination of the urine? I hold that every patient should be examined for the three T's and along these lines. How many of us warn patients against the excessive use of cane sugars, glucose and carbohydrates? When we stop to consider that after the Revolutionary War, the estimated consumption of sugar in the United States was only 7½ pounds per capita per annum, whereas in 1914, the per capita used amounted to about 90 pounds, as Joslin[16] says, "the marked increase in the consumption of sugar is appalling." He continues: "Since 1900 it has increased 17 per cent., and the mortality from diabetes mellitus has doubled in that time. Such a marked alteration in the diet of the nation is noteworthy and deserves attention."

It is in these civilized food products that we must look for the agents that are responsible for autointoxications from which the human race now suffers. The carbohydrates taken as sugars and starches are digested by the ptyalin of the saliva, and amylopsin, maltase and lactase of the pancreas, and the invertin of the intestinal juice, so that they are all reduced to a state of monosaccharids. Some of them are further broken up by bacteria,[17] with the formation of lactic acid, alcohol, marsh-gas, hydrogen and butyric acid. In other words, there is nothing in the human stomach to render it physiologically assimilable. It is attacked there by bacteria which oxidize it and convert it into highly irritable organic acids and several alcohols. If taken in solution on an empty stomach, or when the food is passing into the small intestine, it becomes a food product, as the inverted ferments of the intestine break it up into glucose and levulose sugars, which are assimilable. If taken, however, with food which must remain in the stomach one or more hours, then sucrose becomes a foreign body, is acted on by bacteria, and its ultimate products become important factors in the production of our metabolic diseases.[18]

As Hawk[19] says, "Chemically considered, the carbohydrates are aldehyd or ketone derivatives of complex alcohols." I think two things, therefore, are necessary for sugar fermentation; undigested sugar free in the stomach or intestine, and the bacteria in sufficient quantity to attack it. Overfeeding with sugar either given as too much food as a whole, or as too high sugar percentage, will cause fermentation. We must bear in

11. Ziegler, S. L.: The Chemistry of Metabolism in Its Relation to Ocular Diseases, Ann. Ophth., April, 1911, p. 250.
12. King, J. J.: Further Observations on the Conellan-King Diplococcus Throat Infections, J. A. M. A. 68: 91 (Jan. 13) 1917.
13. Osborne, O. T.: Tooth Infections, New York M. J. 107: 385 (March 2) 1918.
14. Gardiner, H. C.: The Medical Treatment of Graves' Disease, New York State J. M. July, 1918, p. 267.
16. Joslin, E. P.: The Treatment of Diabetes Mellitus, Ed. 2, p. 59.
17. Matthews, A. P.: Physiological Chemistry, Ed. 2, p. 446.
18. Decks, W. E.: Gastric and Duodenal Ulcers, New York M. J. Nov. 30, 1912, p. 1103.
19. Hawk, P. B.: Practical Physiological Chemistry, Ed. 5, p. 19.

mind that the gastric juice is not only a secretion but also an excretion, and anything that goes into the stomach that will produce fermentation will generally produce hyperacidity and will have a tendency to give us the acid stools.

CASE 7.—A man, aged 20, who came to my clinic with vision: O. D., 20/20; O. S., 20/200, complaining of poor vision in the left eye. There was a circumcorneal injection of blood vessels of the left eye. The cornea was hazy, with few spots on Descemet's membrane, and the pupil was contracted. One could see that the eye was in a state of low grade inflammation. The teeth were negative as far as we could make out, although a roentgenogram of them was ordered. A Wassermann test was also taken. The tonsils had been removed when he was a boy. On getting his personal history, it developed that he had eaten about half a pound of chocolate every day for the last six months. He was a helper on an express wagon and visited many candy stores. He was taken off the sweets and given some atropin and hot bathing for his eye. He continued with his work.

Two weeks later roentgenoscopy of the teeth and the Wassermann test were negative; the urine was also negative, except for ++++ indican. The patient continued to improve, and at the end of three months was entirely well, with a vision of 20/30. One year has now elapsed and he has had no return of his malady. There is no doubt that this patient was suffering from sugar poisoning.

Dietitians are not all agreed as to the value of sugar. I hold and believe that it is a toxic substance, and that children, as well as adults, should be deprived of its use, so far as possible.

We see the baneful effects of candy and sweets in children coming to us with eczematous keratoconjunctivitis, one of the commonest diseases of the eye. It is a common disease in more senses than one, for it is common among the common people. The sight of a dirty and slatternly mother dragging two or more children equally dirty and slatternly, with eyes tightly closed is, unfortunately, too frequent in our outpatient clinics, and forms a sad picture which is familiar to us all. To my mind, the phlyctena, which is characteristic of the disease, is the ocular manifestation of a toxemia arising from some focus situated somewhere in the body. It is interesting to note that all of the children have gastro-intestinal disturbances, and the great majority of them have indican in the urine. This toxemia of the gastro-intestinal tract is brought on by the excessive use of candy and sweets, and bad teeth. Some of these unfortunate children also have adenoids and tonsils, which must be removed. I know that a great many observers claim that there is a good deal of evidence to show that a tuberculous focus exists somewhere in the body. I do not think that their reasoning is sound. I hold that the three T's play the important part in the etiology of this disease. When the cause of the trouble is removed and these children have local treatment for their eyes, they get well.

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I hold that every case of retrobulbar neuritis should have a chemical analysis of blood and urine, even if the patient smokes and drinks. Estimations of the blood sugar are, undoubtedly, of great value in the treatment of these cases of toxic amblyopia.

There are two ways in which the sight may become affected in toxic amblyopia—endogenous or exogenous: the endogenous toxins being found in connection with hyperglycemia, diabetes mellitus, uremia, the puerperal state, or a septic process somewhere in the alimentary canal, while exogenous toxins are tobacco, ethyl or methyl alcohol, and numerous other substances.

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Of course, the examination of the urine of all new patients coming to the office is imperative. It is also essential to have the indican content of the urine. This gives a rough index of the extent of the putrefactive process in the intestine. It is therefore the duty of every physician, whether he be specialist, general practitioner or surgeon, to examine the urine of all new patients coming to his office, and to demand a urinalysis of all old patients once a year. I cannot lay too much stress on the importance of having the urine of all patients examined, and I think that the failure on the part of the physician to do this is simply inexcusable.

Joslin says that "the time is not far distant when the progressive dentist, even, will demand a urinary report of all his patients." I am convinced that the indican reaction is passed over too lightly by physicians in general. Soper[26] says: "I have often noted the good effects produced in certain cases of toxic headaches by sharply limiting the protein and reducing or omitting sugar from the dietary. Patients of this class usually present excessive indicanuria, much colonic flatus, froth, and fermentative feces. Moreover, they are in the habit of consuming large quantities of cane sugar."

Apropos of the carbohydrate element, the work of Pemberton[27] is especially interesting. He produced good results in cases of rheumatoid arthritis by a radical reduction of carbohydrate in the dietary.

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Why the optic nerve should be affected in some cases of gastro-intestinal autointoxication, the uvea in other cases, the cornea in some and the vitreous in still others, I am not able to state, nor am I able to state just how the conditions are brought about. We must all admit, however, that toxemia may result from chemical changes in the intestinal contents, and that absorption of protein toxins from the intestinal tract does take place, and that the blood stream is the carrier of the infection, the three common foci being the teeth, tonsils and the intestinal tract.

SUMMARY AND CONCLUSIONS

The Teeth.—1. If the teeth are properly treated from the outset, they will not abscess. If we do our part, Nature will do hers. That is the reason why we must start with the children in the schools.

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28. Hagelberg, M.: Berl. klin. Wchnschr. 39: 1877 (Sept. 30) 1912; abstr. J. A. M. A. 59: 1753 (Nov. 9) 1912.

2. Errors of diet and pyorrhea alveolaris are the starting points of nearly all cases of hyperacidity, hypo-acidity and toxemias of the intestinal tract. Children are often improperly fed, with the result that about 70 per cent. of schoolchildren have dental cavities; and when decay sets in early, the teeth become septic, poisoning the food eaten, so that systemic infection is frequent. Decayed teeth afford a ready passage into the system for disease germs. Large numbers of children have tuberculous glands which, in my opinion, are incident to such foci.

3. Sugar, chemically, is a solid alcohol. From a local little used product it has become the universal condiment in the food of the civilized races. It is used in man's drink, in his food and as his refreshment between meals, not only in solution, but also in the form of the ubiquitous candies of commerce. We must also bear in mind that two fifths of all the sugar consumed is eaten in the form of candy.

4. Dietitians are not all agreed as to the value of sugars. I hold and believe that they are toxic substances, and that children as well as adults should be deprived of their use as far as possible, as they are chemical alcohols. When the hydrochloric acid of the gastric juice is diminished in quantity (hypo-acidity), as it may be in many cases of functional or organic disease, there is no check to the growth of the microorganisms in the stomach; then the sugars are acted on by the bacteria, and fermentation takes place, with the formation of large amounts of such substances as lactic acid and butyric acid; in some cases a pyloric spasm is produced, thereby more markedly increasing fermentation and acidity with their end-product results. Hawk says that there are certain of the more resistant spores which even the normal acidity of the gastric juice will not destroy.

5. It is difficult for me to avoid the conclusion that the unrestricted use of all carbohydrates must be deleterious to the human economy.

6. If the sugar poison can invade the aqueous, the vitreous and the nutritive stream of the lens, then why can it not produce an inflammatory process in any of the tissues of the eye? On account of the insidious onset, the cause of the trouble is liable to escape recognition unless the dietetic condition is kept well in mind.

7. We must educate our patients to look after their diet, teeth and tonsils, and impress on them the great importance of having their urine examined once a year. In obscure conditions of the eye, we must go a step farther and have the feces of the patient examined, to see if the stools are toxic, and last but not least, to insist on a chemical examination of the blood, as a thorough investigation of the urine, feces and blood will give us a reliable index of the putrefactive condition of the intestinal tract.

40 East Forty-First Street.

ABSTRACT OF DISCUSSION

Dr. Hiram Woods, Baltimore: I believe absolutely in the possibility of a dental origin of ocular lesions. Dr. Bell has called attention to a matter of great importance clinically, but it is apt to lead us into a lot of speculative pathology. The clinical importance is twofold: (*a*) Our patients will not get well unless we find the cause of the eye disease; (*b*) in the present state of our knowledge, little more than a therapeutic experiment is at command. We give the patient the benefit of our best judgment and go over everything we think causative. Then we act. But can we tell, before our therapeutic test, how near right we are? Dr. Bell mentions a case of obstinate episcleritis. It resisted everything until the pyorrheal condition of the gums was removed. That was the cause. I had a patient with episcleritis who had had all his teeth extracted, except four. The attacks of episcleritis continued. Then another dentist removed all the bridge work. He still has episcleritis. In this case the teeth were not the cause, in spite of the dead roots showing infection. Sometimes we find more than one cause, as one of Dr. Bell's cases illustrated. With pyorrhea or dead teeth in a syphilitic patient, for instance, there is usually nothing in the appearance of the eye to guide us in determining the etiology. If we assume dental origin, we may deprive a patient needlessly of a very useful part of his anatomy. Dr. Bell uses the expression "rheumatic iritis." We should get rid of this term. Both rheumatism and iritis are infections, and do not bear a causative relation to each other. They are due to the same cause. As to the tonsils, they are universally recognized as a portal of entry for infection. Grant distal manifestation of focal infection and a tonsillar cause is admitted. Yet even so, tonsils may be removed for ocular troubles without benefit. It is another diagnostic pitfall. Before the removal of a tonsil solely for ocular disease, there should be, as far as possible, an exclusion of other causes and a bacteriologic examination of the crypt content. Finally, Dr. Bell discusses intestinal autointoxication as a cause of eye disease. He speaks of it as a toxemia. I was much surer some years ago, than now, about the causative relation between intestinal absorption and eye lesions. Dr. Bell is right in associating recurrent phlyctenular ophthalmia with intestinal disorders.

Dr. John E. Weeks, New York: In a considerable number of cases of autointoxication, by regulating the diet, we were able to cure fifty-three out of fifty-five patients who had inflammatory conditions of the deep structures of the eye. Eliminate or limit the quantity of sugar; give meat. We were never intended to eat sugar. It has only been a diet for a couple of centuries. Sugar causes fermentation and the generation of acids, which affect the eye and other structures.

Dr. F. Park Lewis, Buffalo: I think I have absolutely demonstrated the effect of dental infections in the production of iritis. About two months ago in a case of recurrent iritis, working in conjunction with a group of men, a suspected tooth was found to have a root abscess. It was extracted under aseptic precautions. It was crushed, and from the canal was taken a culture which proved to be almost an absolutely pure *Streptococcus viridans*. Injections were made into the abdomen and the ear vein of a full grown white rabbit and within twelve hours there developed a definite iritis, with little ocular congestion, nor was there any congestion of the retinal vessels. After four days the inflammation began to recede and a large dose was given which killed the rabbit. The eye was then removed under aseptic precautions and a portion of the iris was dropped into culture medium. We reproduced *Streptococcus viridans*. The organism was also found in the iris tissue. This demonstrated absolutely for the first time, as far as I know, the selective affinity of the organism found in dental root abscess for the special structure which had been affected in the individual from which the tooth was taken.

Dr. Clarence A. Veasey, Spokane: The most remarkable demonstration of the direct influence of focal infections in the production of ocular disease I have ever had the opportunity to observe was in five cases of ophthalmoplegia interna. One of the patients was treated by the former usual methods for several weeks and others were treated for a somewhat shorter period without the least appreciable improvement. In from two days to one week after the removal of the focus of infection every patient had entirely recovered. Four of the cases were due to chronic infection of the faucial tonsils and one was due to a focal infection in a tooth because of a partially filled canal. In the latter case no pus was found; but a roentgenogram revealed a rarified area at the root of the tooth, and the canal was then discovered to have been filled only partially. I have also

observed several cases of high blood pressure, some with marked pulsation of the retinal arteries, minute hemorrhages and acute nephritis. These conditions disappeared within a short time after the removal of the focus of infection. My own observations, like those of others, would seem to indicate that many ocular affections, formerly classed as idiopathic, are in reality due to a focal infection somewhere in the body; and in any given case, whether or not there appears an apparent cause, thorough examinations should be made to discover whether in addition to the apparent cause there may not be some focus of infection.

DR. M. C. ROSS, New York: J. Forbes Ross of London has repeatedly demonstrated that he can modify the surgical scar by increasing or decreasing the potassium salts given the patient. In eye work where prompt, perfect healing is so essential the study of every detail should be our aim. Further confirmation of the value to ophthalmologists of the study of diet can be found in the experiments of A. H. Clark of Baltimore. In the treatment of some of the pus invasions by vaccines, the reaction and coagulability of the blood is so important, that if the blood has not the right reaction, they fail to give results. Give the patient lemon juice and the vaccines will produce results. Experience of over twenty years has shown that every inflammation, from the top of the head to the sole of the foot, makes greater headway in an acid body; so it has been my custom to stop excess of sugar, oranges, grapefruit, wine and beer, reduce the quantity of protein food, and to administer alkalis, such as potassium bicarbonate or sodium bicarbonate; stop when the body is slightly alkalized. Dr. Mendel of Yale showed how cases of xerophthalmia and other eye diseases developed in children whose diet was defective in fats and vitamins. The eyes were quickly made well by the addition of chicken liver and cod liver oil to the diet. Laboratory workers have demonstrated that the amount of end-products of protein digestion (uric acid, ureacreatinin) excreted by the kidneys may bear no constant ratio to the uric acid, urea and creatinin content of the blood. Clinical workers have demonstrated, with the help of the laboratory, that the excess of the end-products of protein food in the blood bears a definite relation to sickness and disease; and the amount of the end-products excreted by the kidneys often bears no constant relation to the condition of the patient. Creatinin is the easiest of the end-products of protein to be eliminated by the kidneys. So a constant excess of creatinin in the blood from 6 to 10 per cent. shows that the kidneys are hopelessly damaged, and the prognosis must be bad. Creatinin is produced from tissue cells, and Lusk tells us that the quantity of creatinin eliminated is independent of the quantity of protein intake, and the same holds true, as a rule, for uric acid; but urea output can be increased or decreased by regulating protein diet. Since the protein output in the urine may bear no constant ratio to the excess of protein end-products which may be in the blood, and since the excess of protein products circulating in the blood bears a constant relation to certain degenerative diseases of the eye, I would recommend routine blood examinations in degenerative eye conditions.

DR. FREDERICK F. TEELE, Lincoln, Neb.: Dr. Bell's summary of the present status of focal infections as related to eye diseases deserves consideration. Too much emphasis cannot be placed on the necessity of finding all sources of infections. The fact of a positive Wassermann does not mean that iritis is due to syphilis. Brown and Irons in their report of 100 cases of iritis found that seventeen were due to combined causes. I have seen numerous cases of iritis or uveitis in syphilitic individuals, who had either resisted the ordinary specific treatment or had recurrences, clear up apparently permanently by removal of the teeth or tonsils. A large number of old scleritis patients are without teeth, but I think free from a return of that painful affection. As to intestinal toxemia, as far as I can learn, the view seems to lean more toward the idea that this factor belongs in the same category as rheumatism and is an incident of the same causal agent of the eye disease. Brown and Irons unqualifiedly present this view. They failed to find one case out of 100 in which focal infection was absent, and conclude that the intestinal toxemias were due to the same focal infection as the iritis. Dr. F. Park Lewis agrees with this view in an article which he read two years ago, in speaking of the etiology of lenticular changes. He states that every patient with striae in the lens is suffering with a greater or lesser degree of intestinal indigestion, with the resultant absorption of toxic products. It seems to me that in view of the well known necessity and value of a certain percentage of sugar in the diet of infants and growing children, it is a reasonable conclusion that a certain amount is allowable in any dietary. Our aim should be rather a well balanced ration in a quantity suitable to the needs of the individual. I assume that if the ordinary amount of sugar is not assimilable, a focal infection might be responsible for such failure. I would in this instance extract the abscessed tooth, but not the "sweet" tooth.

DR. JAMES J. KING, New York: The importance of tonsillar infection in relation to eye diseases was first impressed on me in 1914. A doctor had a severe tonsillitis in April. Three weeks later he developed episcleritis, multiple arthritis, nephritis, myocarditis and endocarditis. Those conditions persisted for eight months despite treatment by many able specialists. In December, 1914, he consulted me in relation to his tonsils as a causative factor of his trouble. Three eminent laryngologists had told him his tonsils were negative. On taking cultures of the tonsils I found a virulent infection and advised the use of autogenous vaccines and then the removal of the tonsils. This advice was followed, and in one month all of his symptoms had disappeared. Today, after an interval of four and one-half years, he is a well man.

DR. H. B. LEMERE, Omaha: In the West we practice triology, we extend our practice to the ear, nose and throat, so that we form from our own findings a concrete idea of the nose and throat in connection with eye disease, and I now have added diagnostic stomatology as necessary for proper diagnosis and treatment of eye conditions. Unless we can interpret our own roentgenograms of the alveolar processes, we will fail to get the infected foci removed in many cases. We will have to help, at times, dentists who are not well grounded in pathology, even though they may be skilful mechanically, and this we shall fail to do unless we can discuss intelligently with them the films and the appearance of the alveolar processes. Many of these focal infections are secondary to primary foci; as, for example, infected tonsils from bad teeth or maxillary sinus empyema from an infected tooth, and these secondary infections may in turn cause ocular disease. Dr. Knapp's paper seems to indicate that in sympathetic ophthalmia the injured eye may be regarded in the light of a secondary focus. I want to endorse what Dr. Park Lewis said, that each case must have some one responsible for results, and one man must have authority over and direct all the energies of the workers in the different branches. In a pronounced ocular affection the internist, the laryngologist and the dentist must all be subordinate to the oculist, as the eye condition is the one of paramount importance.

DR. OLIVER TYDINGS, Chicago: When we recognized that these troubles were only local symptoms of systemic disease, we made a large advance. Fifteen years ago I reported a case of iridocyclitis which had developed for a long time and which I was unable to relieve. The man was cured by a rectal surgeon. Fifteen years ago, in the course of a discussion on a paper by a New York surgeon, I exhibited some instruments and spoke of the enucleation of tonsils. I was informed that my method was exceedingly crude; that it had been used and abandoned some eleven hundred years prior. I am glad to see that some New York surgeons are following in those footsteps now.

DR. S. LEWIS ZIEGLER, Philadelphia: I do not wish to belittle the importance of focal infections, but I think we should also take notice of the disturbing influence of suboxidation. My attention has been called particularly to it as the causative factor in many ocular lesions. The case of papilledema which Dr. Bell quoted from one of my papers as resulting from infected tonsils was due to tonsils that were enlarged and acted as an obstruction to breathing. The

same causative factor existed in several cases of Mikulicz's disease which I published some years ago. There was no bacteremia shown in those cases. The patients were all cured by correction of the respiratory error. In one case it was enlarged tonsils and in another it was nasal obstruction. The question of diet is also very important. In cases of ulcerative keratitis in children it has been my custom for many years to say "no tea, no coffee, no cakes and no candy." I think this error starts in the stomach, passes on to the nose, and thence through the tear duct into the eye. We must, therefore, consider the importance of these underlying conditions the result of dietetic errors. I think that while the bacteremia problem should be studied carefully, we must likewise consider the chemistry of the system. In other words, if the chemistry of the system is perverted by bacteria, well and good; but we must consider all the factors involved.

DR. GEORGE HUSTON BELL, New York: We all now agree as to the value of eradicating infections in the teeth and tonsils. The question of food intoxication is the most important subject before the medical profession today, as it is the starting point of all our troubles in the gastro-intestinal tract and also the starting point of pyorrhea alveolaris. The human race now suffers more than ever from diseases of middle life and I believe that it is the civilized food products, errors of diet and bad teeth and tonsils that are the causes of the trouble. It is the acid fermentation and acid intoxication produced by sugars and sweets and excessive use of carbohydrates. When sugar is fermented by bacteria, acids are formed. These may be divided into two groups. The volatile acids, such as formic acid, acetic acid and butyric acid, and the nonvolatile acids, such as lactic acid; the volatile acids are formed in large amounts and are the ones that do the most harm. Too much acid causes fermentation, hurries food out of the stomach into the intestines, chemical changes take place, poisons and toxins are formed, which, once absorbed into circulation, cause autointoxication. Therefore, we must eat base forming foods. There are a lot of things which we cannot prove in medicine; but that should not deter us from going forward. The process of elimination of focal infections is good enough for me when I can not obtain positive proof. The remedy for all these troubles must be found in the field of the cause. We must investigate the teeth and tonsils and correct the errors of diet. In the treatment of our eye diseases, we should have at our elbow the internist, so as to confer and consult with him. By this means we can hope to attain proficiency in diagnosis and have the proper conception of treatment in all eye conditions.

AN EXPERIENCE WITH EPIDEMIC MENINGITIS *

J. S. ROBISON, M.D.
Captain, M. C., U. S. Army
WINCHESTER, IND.
AND
JESSE R. GERSTLEY, M.D.
First Lieutenant, M. C., U. S. Army
CHICAGO

In spite of some recent publications, the value of the agglutination test as a check on the efficiency of meningococcus serum has not been given the proper clinical appreciation. Regarding this, our experience with some forty-five cases of epidemic meningitis may be of interest.

When the Army of Occupation entered Coblenz, sporadic cases of meningitis appeared, never two in the same company or neighborhood. All patients, whether brought in late or early in the disease, were at once put on the usual treatment, which consisted of intraspinal and at times intravenous injections of serum. This product, that of an American commercial firm, was five months old and dated good for another month.

At this time Captain Leon Unger of Chicago, who in France had had considerable experience with this disease, urged that in clinical value the American serum was vastly inferior to that of the Pasteur laboratories.

In spite of our immediate requisition, however, the French serum was somewhat delayed, so that before its arrival we had had ten patients. Our results with these were most depressing. Try as we might, in spite of intraspinal injections, often three times within twenty-four hours, the disease progressed steadily and rapidly, absolutely uninfluenced by our efforts. Of the first ten patients, nine died, and the only one who recovered was a young soldier with an exceedingly avirulent infection during the course of which he never lost consciousness. On him, treatment apparently had little influence. He never seemed better or worse or in any way affected by the therapy, but dragged on a rather slow and often interrupted convalescence.

CULTURES OF ORGANISMS OBTAINED FROM SPINAL FLUIDS*

No.	A	B	C	D	E	F	G	H	I
5650	++	++	—	++	—	—	—	—	—
5545	++	++	—	++	—	—	—	—	—
5440	++	++	—	++	+	—	—	—	—
5695	++	++	++	++	+	—	—	—	—
5277	++	++	+	++	+	—	—	—	—
5910	++	++	++	++	—	—	—	—	—
5515	++	++	++	++	—	—	—	—	—
5538	++	++	—	++	—	—	—	—	—
5441	++	++	+	++	+	—	—	—	—

* The letters in the captions indicate the various serums: A, Pasteur serum, November, 1918; B, Pasteur serum, December, 1918; C, American commercial serum; D, Rockefeller Institute, polyvalent; E, Rockefeller Institute, regular type serum; F, Rockefeller Institute, paratype serum; G, normal horse serum; H, normal salt solution; I, Pasteur serum, 1917.

Then came the shipment of French serum. It was dated as manufactured October, November and December, 1918. To our chagrin, however, it failed us completely, and the next patient, like the others, progressed steadily to his death.

A survey of this new serum, however, gave us some hope. The nurse in charge of the ward, Miss Edith Kingsley, noted that in this shipment, by an oversight, a carton of vials, dated 1917 instead of 1918, had been overlooked, and just by chance the first sample taken had come from this particular carton. Of course, we discarded this at once and used the new Pasteur product.

Never have we witnessed such a striking result from a change in therapy. Patients continued coming from all parts of the Army of Occupation to a total of forty-five. There was no change in our technic. Intraspinal injections were given twice, and in the most desperate cases, three times a day. Intravenous injections were only rarely employed. Never has a therapeutic test been more definite, more conclusive. With the advent of the new serum our mortality, almost 100 per cent., changed to a recovery of 100 per cent. Every patient progressed satisfactorily, uneventfully with no complications, to perfect health. Epidemic meningitis, from a gruesome, depressing and repulsive disease, became after only a few treatments a relatively mild ailment.

The agglutinating properties of the various serums were examined by one of us (J. S. R.) without any knowledge as to the clinical results. In the accompanying table the numbers represent cultures of the organisms obtained from spinal fluids of the various

* From Evacuation Hospital No. 2 and No. 49, Third American Army, Coblenz, Germany, Lieut.-Col. Robert B. Hill, commanding.

patients. The agglutinations were done in February, 1919. The clinical observations extended from January to April, 1919.

A later check on the New York State Board of Health serum showed it to be satisfactory both in its agglutinating properties and its clinical results.

CONCLUSIONS

From a study of these forty-five cases, one arrives at the following conclusions:

1. Bacteria may vary according to geographic location. Perhaps our first serum failed because, in its manufacture, strains or organisms indigenous to Germany and France were not included. This, at any rate, is a theoretical possibility.

2. A conclusion of vital clinical importance is that if a patient with epidemic meningits does not respond at once to intraspinal treatment, one should not temporize. The agglutinating property of the serum against the patient's own organisms should be tested, and if the laboratory evidence is unfavorable, more satisfactory serum should be procured at once.

4235 Michigan Avenue.

THE INFLUENCE OF HIGH AIR TEMPERATURE ON TUBERCULOSIS

HARRY GAUSS, M.D.
CHICAGO

It is generally taught that man is a homothermal organism, that he has a wide range of adaptability to external atmospheric conditions, that his mean daily temperature varies between 98 and 99 F., this being subject to minor variations according to age, exercise, altered respiration, period of the day, food metabolism, etc. Some observers, nevertheless, have shown that there is a certain relationship between the body and atmospheric temperatures. Hermans[1] records that in crowded theaters and churches his own body temperature rose. Castelli and Chalmers[2] observe that if a person, lightly clad and in good health, places himself in the hottest part of an engine room on a steamer in the Red Sea, it will be found that for a short time his temperature remains normal, but in due course of time his temperature will gradually rise to 102 F. or over, when the person breaks off the experiment because of the accompanying general distress, after which his temperature slowly returns to normal. Haldane,[3] investigating the influence of high air temperatures, observes noticeable elevations in the body temperature when a person is subjected to still, elevated and saturated atmosphere. Likewise, Lee[4] has seen the temperature of a normal adult rise 6 F. during a stay of three and one quarter hours in an atmosphere averaging 104.7 F. with 95 per cent. humidity.

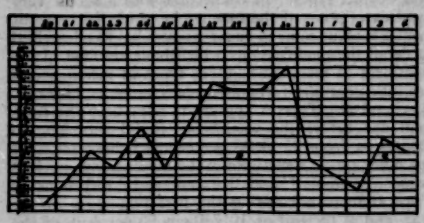

Chart 1.—Average mean daily air temperature, July 20 to Aug. 4, 1916, taken from the U. S. Weather Reports for Chicago: *B*, principal heat wave; *A* and *C*, minor heat waves preceding and following it.

Under normal conditions, heat loss of an average man is accomplished by radiation and conduction, 65 per cent.; by evaporation from the skin, 15 per cent.; by evaporation from the lungs, 15 per cent.; by heating respired air, 2.5 per cent., and by heating excreta, 2.5 per cent. (Stewart[5]). But when the body is subjected to high temperatures, heat loss from radiation and conduction is reduced to a minimum. The heat regulating mechanism continues for a while to dissipate the heat through the other functions which commonly play a minor part and which thus have the burden of heat dissipation thrown on them. Should the heat regulating mechanism become impaired or fail under the unfavorable atmospheric conditions, heat stroke or heat exhaustion may result.

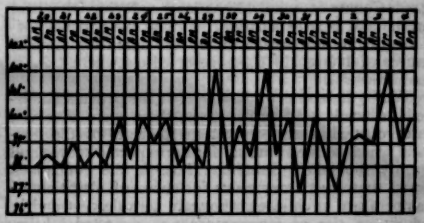

Chart 2.—Temperature chart of a patient from the tuberculosis ward showing rises of 2 F. above his usual course of the disease on days of the principal heat wave and the succeeding minor heat wave.

The direct cause of heat stroke and exhaustion is heat, as given by Rogers,[6] who states that when it is found that heat stroke in India is commonest in the three hottest months and in the geographic groups where heat is fiercest, it seems not unlikely that heat, pure and simple, is the chief factor. The predisposing causes have variously been given. Manson[7] summarizes them as all physiologic depressants, notably intemperance, fatigue, overcrowding, unsuitable clothing, malaria, acute disease, and also chronic organic disease of the important viscera.

The study of the effects of high air temperatures on a normal healthy person may be conducted with reasonable accuracy; but any attempted observation on the effects of high air temperatures on a person having any of the predisposing causes gives rise to a multiplicity of difficulties. Especially is this true if the observed predisposed factor in itself may give rise to an elevation of temperature. However, certain observations made at the Cook County Hospital, Chicago, during July and August, 1916, are worth noting.

During the last five days of July, 1916, Chicago was in the midst of a heat wave which was unusually

1. Hermans: Arch. f. Hyg. 1:1, 1883.
2. Castelli, Aldo, and Chalmers, A. J.: Manual of Tropical Medicine, Ed. 2, London, Tindall & Cox, 1913.
3. Haldane: J. Hyg. 5:494, 1905.
4. Lee: Science 44:183, 1916.
5. Stewart: Manual of Physiology, New York, 1918.
6. Rogers, Leonard: Fevers in the Tropics, Ed. 2, London, H. Frowde, 1910.
7. Manson, Sir Patrick: Tropical Diseases, Ed. 5, London, Cassell & Co., 1914.

oppressive. The mean daily temperature for July 27, 28, 29, and 30, was from 90 to 93 F. During this time there was 100 per cent. sunshine, the average hourly wind velocity was 6, and the average relative humidity was 58. The principal heat wave was preceded and followed by minor heat waves whose mean daily temperatures were about 85 F., each being of short duration.

In Chart 1, *A* represents the preliminary heat phase; *B* the principal heat wave, and *C* the succeeding heat phase. During July, 1916, there were admitted to Cook County Hospital 158 patients suffering from heat stroke and heat exhaustion. Among the patients suffering from heat stroke there were admitting temperatures of 110 to 114 F., as reported elsewhere (Gauss and Meyer[2]).

Totally independent, however, of the patients admitted as frank heat stroke cases, there were observed rises of temperature in various patients of the hospital which seemed unusual for the expected course and duration of their disease. Thus, in the contagious ward there were numerous instances of elevation of temperature in children who were convalescent and in whom no rise of temperature was expected. Likewise, in the general medical ward there were observed

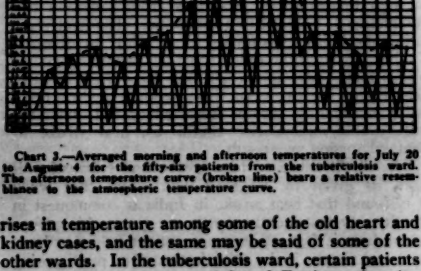

Chart 2.—Averaged morning and afternoon temperatures for July 20 to August 4 for the fifty-six patients from the tuberculosis ward. The afternoon temperature curve (broken line) bears a relative resemblance to the atmospheric temperature curve.

rises in temperature among some of the old heart and kidney cases, and the same may be said of some of the other wards. In the tuberculosis ward, certain patients had rises of temperature of 2 to 3 F. above that due to the usual course of the disease, which corresponded in time with the principal heat wave and the succeeding phase. Chart 2 is a representative instance. This is offered as an interesting coincidence of increased fever on days of severe atmospheric conditions. There are too many factors that may cause a rise of fever in a tuberculous patient for one to draw hasty conclusions from a single case.

If an observation could be obtained on a sufficiently large series of patients, however, such that the individual causes are of lesser importance than the external factor influencing the whole group, then a satisfactory observation might be made. The tuberculosis ward was selected for this study because it was desired to observe the temperatures in patients for a period of fifteen days; five days preceding, five days of the heat wave, and five days succeeding it; and the tuberculosis ward offered the best material. Most of the patients have chronic advanced tuberculosis, their fevers tend to run an even protracted course, and there are few or no crises and lyses to cause marked fluctuations of fever curves. The history of every patient in the tuberculosis ward was examined, and the patients who were in for the entire period of fifteen days from July 20 to Aug. 4, 1916, were selected for observation. Fifty-six cases were thus obtained. The morning and afternoon temperatures of the entire fifty-six patients were averaged for each day and plotted (Chart 3). It is thus seen that in the five days preceding the heat wave, July 20 to 25, the average afternoon temperatures varied between 99.5 and 100 F., in the five days of the heat wave, July 26 to 30, the afternoon temperatures varied from 100.5 to 100.8 F., and in the five days after the heat wave the afternoon temperatures varied between 99.7 and 100 F. The striking factor is that during the heat wave the average afternoon temperature was 100.62 F. compared to 99.8 and 99.86 F. for similar periods preceding and following it.

We conclude that the increased temperatures for July 26 to 30 probably were caused by the high air temperatures and unfavorable atmospheric conditions.

2. Gauss, H., and Meyer, K. A.: Am. J. M. Sc. 154:554 (Oct.) 1917.

Therapeutics

THE TREATMENT OF EPIDEMIC MENINGITIS

Extensive outbreaks of epidemic meningitis in the different armies during the past five years have stimulated an intense study of the disease here and abroad. As a result, much valuable information regarding etiology, epidemiology and treatment have been acquired. It is desirable that advantage be taken of the lessons from this experience in the management of the disease in peace conditions. Up to a short time before the war began a single type of meningococcus was generally accepted as the cause of epidemic meningitis. Dopter was the first to classify meningococcus-like organisms into distinct types. In connection with a recent very lucid description of the manner in which the types of meningococcus came to be recognized, he[1] has described in detail the modifications which have resulted in the treatment of meningitis. Four types of meningococci are now generally recognized, designated as Types A, B, C and D. Type A appears to have been the common one before the war, being found according to Dopter in from 95 to 96 per cent. of the cases. Of the other types, sometimes called parameningococci, B is most common, C and D exceptional. Infections by Type B increased during the first two years of the war, and at the end of 1917 about 50 per cent. of the cases in the French army were of this form. Each of these various types of organism is affected only by its own specific serum. A case of meningitis caused by the Type B meningococcus is not influenced by a serum prepared from Type A organisms. Consequently it has been necessary to prepare serums from each type of organism for use in the treatment of meningitis due to the corresponding type.

For the most efficient serum treatment of epidemic meningitis, two things now appear essential: (1) an accurate biologic determination of the type of organism concerned in the individual case, and (2) the

1. Dopter, C.: Recent Work on Cerebrospinal Fever, Lancet, French Supplement, 1:1075 (June 21) 1919.

administration of the serum prepared from the corresponding type. Dopter is not in favor of using polyvalent serum except as a measure of precaution until the laboratory examination has determined the type present in the case. As soon as the type is known, the corresponding monovalent serum should be substituted. He believes that "too much polyvalency might conceivably involve risk of diminished potency." Those who have treated meningitis with serum have observed that occasionally cases occur which are not appreciably benefited by the polyvalent serum used, and in such cases the spinal fluid does not clear up nor do the meningococci decrease in the fluid, as is usual in most cases. Sometimes another make of polyvalent serum may be active, and it is advised to make use of this expedient, with the hope that a strain of meningococcus corresponding to the one causing the infection may have been among those employed in preparing the serum. At best this is not satisfactory. It is much to be desired that serums should be prepared from the several types so that they may be available for cases which do not respond promptly to the polyvalent serums. Accurate differentiation of the type of infecting organism by biologic tests is essential before the treatment can be carried out with a high degree of precision. It has been found that the cases prevailing in a group of individuals both in the meningeal exudate and in the nasopharynx of carriers are usually of one type. Mathers and Herrold[2] found that, in a camp near Chicago, almost 86 per cent. of the cases of meningitis were due to Type A (Group 1), and in the city of Chicago at the same time more than 86 per cent. of the cases were due to Type B (Group 2). If investigation revealed the prevalence of one type in a community or epidemic, a serum high in immune bodies for that type would be reasonably used for routine treatment if it were not feasible to make a biologic differentiation in each case. As the abnormal conditions of army camps disappear, it will be of interest to note whether the prevailing type of meningococcus will again be the Type A, as was apparently the case before the war. Study of cases of epidemic meningitis has served also to emphasize the fact that the meningococci are found not only in the meninges, but also often in the blood, joints, etc. When serum is injected intraspinally, it rapidly passes into the circulation; but it is desirable to secure a greater concentration of antibodies in the blood than is secured in this way. This can be brought about by intravenous or intramuscular injection of serum. It would probably be a useful practice to combine intramuscular with intraspinal injection in all cases. When intravenous injections are used, all precautions to avoid anaphylactic shock should be taken.

Dopter also discusses the procedures to be adopted when serum treatment is unsuccessful. Mechanical conditions brought about by the inflammatory process in the meninges interfere with the free passage of the serum, which thus is limited in its action to a portion of the arachnoid space. In the early stages of meningitis, the serum injected by the lumbar puncture needle passes freely through the spinal and cerebral subarachnoid spaces and the communicating cavities. When the inflammatory exudate begins to organize, obstructions to the flow of serum are formed, and free circulation is interfered with. The obstruction may be spinal, at the base of the cranium, or at the foramina leading to the ventricles. When the arachnoid space has been blocked, the serum must be injected by routes other than the lumbar one, the site of the obstruction determining the position of puncture. With spinal obstruction, dorsal or cervical puncture is employed. When there is basilar obstruction which separates the spinal from the cranial cavity, the purpose is to introduce serum directly into the arachnoid spaces of the base. This is accomplished by sphenoidal puncture, passing through the most external portion of the sphenoidal fissure. When the meningitis extends from the subarachnoid space to the ventricles of the brain, there is added a ventriculitis or ependymitis. Obstruction is easily produced at the narrow foramina opening into these cavities of the brain. The clinical course in such cases is usually as follows: Early in the history of the case, the symptoms are relieved by spinal injections of serum. After a few days, symptoms recur, temperature rises, headache becomes intense, and the patient becomes drowsy and intermittently delirious. Lumbar puncture yields clear or turbid fluid free from meningococci, which escapes only drop by drop. The patient grows gradually worse, becomes emaciated, muscular atrophies and contractures develop, and death terminates a chronic course. In such cases an early diagnosis of ventricular lesions is rendered more difficult by the fact that at about the corresponding time serous meningitis from the foreign serum introduced is liable to occur and to give rise to almost identical symptoms. Direct puncture of the ventricles involved, and the introduction of serum, is indicated as soon as a diagnosis is made. Experience in direct injection of the ventricles is limited; but accumulating evidence indicates that this procedure will be found of much value in many cases in which cure is not obtained by the usual method of treatment with lumbar puncture.

If an intolerance to serum develops so that serum treatment must be discontinued, two methods of treatment appear to possess some value: One is the production of "fixation abscess" by subcutaneous injection of 2 c.c. of spirits of turpentine. The other is the use of an autogenous vaccine, consisting of from 100 to 500 million meningococci killed by heat at 55 C. Dopter is favorably impressed by vaccine treatment in cases that do not respond to serum.

2. Mathers, George, and Herrold, R. D.: Observations on Meningococcus Carriers and on the Bacteriology of Epidemic Meningitis, J. Infect. Dis. 22: 523 (June) 1918.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

TYPHOID VACCINE.—(See New and Nonofficial Remedies, 1919, p. 292).

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THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 11, 1919

THE OAT AS HUMAN FOOD

The sentiment once expressed in the English dictum that oats are food for horses in England and for men in Scotland has persisted in many quarters until the present day. The necessities of war time, coupled with the strongly supported exhortations of the U. S. Food Administration, induced thousands of persons to accept the common cereal grains as of similar values, so far as their nutrient virtues are concerned. But peace time is at hand once more, and the barriers built by the national needs of 1917-1918 are being let down. Old time preferences and prejudices are likely to return to their previous prominence, except so far as the newer lessons have produced a satisfaction with the enforced changes.

Wheat is already rapidly regaining its pristine favor. What will happen to the temporary enhanced popularity of the other cereals remains to be ascertained. In the choice between corn, rice and oats, none of which are preferable bread grains, geographic and racial traditions will doubtless continue to dictate the decision, as they have done so long in the past. We have already called attention to Sherman's[1] demonstration of the excellent utilization and nutritive efficiency of maize (corn meal) when its protein is supplemented with about 10 per cent. of the nitrogenous components of milk. In collaboration with Winters and Phillips,[2] he has prepared a comparable report on the oat proteins. The severity of the test is indicated by the fact that the food consisted essentially of oatmeal cooked with starch in thin, hard "scones" and eaten with apple and sugar, with and without milk. When the diet contained 100 c.c. (3½ fluidounces) of milk a day, a daily intake of protein amounting to even less than 0.6 gm. per kilogram of body weight sufficed to maintain a nitrogen balance. Without the supplementary virtue of the milk this record could not be attained.

However, as these investigators conclude, in the maintenance metabolism of adults, as shown by the nitrogen balance experiments, the proteins of oats and maize are of virtually equal nutritive efficiency. This study by Sherman and his collaborators indicates that "for the purposes of practical dietetics, equal weights of oat and maize proteins may be regarded as essentially equal in value, and even the minimum amount of milk which can possibly be regarded as permissible, in the light of our present knowledge of nutrition, will apparently so supplement the proteins of either the maize or oat kernel as to make them function with an efficiency comparable with that of the average protein of mixed diet in the maintenance metabolism of man." No one will be so rash, at the present day, as to maintain that the cereals per se are perfect foods. Their shortcomings in respect to various nutrient virtues have repeatedly been rehearsed in THE JOURNAL. Nevertheless, the time has passed when we are justified in pointing to any of the commonly used cereals as nutritively obnoxious, as "heating" or as inherently detrimental to health. Science confirms what experience frankly teaches, that all these cereals have a useful place in the human dietary. Maize need not be relegated to the pig-pen, nor oats to the stable.

1. Sherman, H. C., and Winters, J. C.: J. Biol. Chem. 38: 307 1918. The Defense of Corn as a War Time Food, editorial, J. A. M. A. 71: 1138 (Oct. 5) 1918.
2. Sherman, H. C.; Winters, J. C., and Phillips, V.: Efficiency of Oat Protein in Adult Human Nutrition, J. Biol. Chem. 39: 53 (Aug.) 1919.

THE RAILROADS AND THE PUBLIC HEALTH

To those who regard war as a great disabling mill and contemplate with horror the casualty list of more than a quarter of a million of soldiers in the United States Army during the recent campaign, the statistics of disability and death chargeable to such peaceable agencies as the railroads may be extremely disconcerting. There is food for reflection in the announcement that the railway lines under government control in 1917, employing approximately two millions of persons, mostly men, injured more than 194,000 persons.[1] Approximately 63,000 of the people injured were more or less severely crippled, and more than 10,000 were killed.

These are not figures rendered high by some fortuitous circumstance. The same incidence of railroad casualties is repeated year after year during war and peace alike. According to Census Bureau statistics,[2] the deaths in 1917 from railroad accidents and injuries surpass all others from external causes except in the case of accidental falls and suicides. The casualties of the European war have furnished the occasion for the development of reconstruction plans whereby the disabled are restored to health or returned to careers of comfort and usefulness. An official[1] of the railroad administration has sanely remarked that, having as an example the activities of the government in its efforts to salvage the wounded and sick of the Army and Navy during the war which is just passing, we should be

1. The statistics are given on authority of the chairman of the Committee on Health and Medical Relief, U. S. Railroad Administration, Pub. Health Rep. 34: 1469 (July 4) 1919.
2. Principal Causes of Death in U. S. Registration Area, Pub. Health Rep. 34: 1474 (July 4) 1919.

derelict if we ignored the humane and economic problem raised by railroad casualties.

Aside from such obvious considerations, the railroads are concerned in less direct ways in many other problems that involve the public health. Railroad construction is responsible for many impediments to natural drainage, whereby pits and ditches become breeding places for mosquitoes. In this way the continuance of malaria, a preventable disease, may be facilitated. Inspection of railways in the South has shown this to be something more than a chance supposition.

The danger of pollution of water supplies through the unsatisfactory methods of sewage disposal on moving trains has often been agitated. The committee on health of the U. S. Railroad Administration has directed attention to the less appreciated situation with respect to toilet facilities in stations and terminal buildings. As every traveler in large cities must know, these facilities are used quite as much by the nontraveling public as by the patrons of the railroads. This statement might be extended to include hotels and similar semipublic buildings. Private corporations are thus compelled to face problems in sanitation that they should not be expected to meet. Problems of transportation are intimately connected with the daily lives of the public. The vehicle should be as sanitarily safe as the home.

THE INFLUENCE OF THE NERVOUS SYSTEM ON THE SECRETION OF URINE

When nerves supplying the kidneys are sectioned or stimulated, changes in the flow of urine and in the output of its various constituents are likely to occur. These phenomena, long known, have been interpreted by some investigators to indicate a specific influence of the nervous system on the secretory function of the kidneys. Perhaps the most definite assumption in this respect relates to the splanchnic nerves, to which a specific secreto-inhibitory influence has at times been ascribed. When the renal nerves are cut on one side a larger volume of urine flows from the kidney involved. This manifestation, together with alterations in the relative proportions of urinary constituents, has led certain observers to conclude that the changes cannot be explained solely as the result of vasomotor changes; hence they must be attributable to effects directly on the renal cells. Several years ago, Asher and Pearce[1] believed that they had discovered secretory fibers in the vagus nerve, because stimulation below the level of the cardiac branches augmented the rate of urinary secretion. Pearce[2] has subsequently concluded that the results claimed are doubtful because there is no increase in oxygen consumption (an index of augmented cellular activity) under the foregoing conditions.

The classic example of the salivary glands which respond so promptly and characteristically to nervous stimulation, quite aside from the changes thereby induced in the blood supply, has naturally prepared physiologic investigators to expect a comparable nervous secretory mechanism elsewhere in the domain of glandular performance. The question involved is, furthermore, fundamentally important from many standpoints. The pharmacologist is interested to know whether the nervous system and the drugs whereby he influences the latter can bring about the production of urine through specific cellular action much as do certain chemical substances, like caffein, which are carried directly to the secretory apparatus by the circulation. The pathologist is also concerned with the precise part played by the nerves in relation to the kidney substance; and the surgeon should also know definitely what a damage to the renal innervation may be expected to occasion. Marshall and Kolls[3] have reinvestigated the problem. Their experimental results show that the changes caused in the secretion of the kidneys after section of the splanchnic nerve on one side are, in all respects examined, similar to those caused by changes in the blood flow through the kidney. Comparable variations can be produced by compression of the renal artery. Urine flow depends more on the rate of blood flow than on blood pressure in the kidney. The effect of section of the splanchnic nerve is an increased blood flow through the kidney, which is responsible for the changes in secretion. Hence, to quote the conclusion of Marshall and Kolls verbatim, it appears that the burden of proof still rests with those who would assign a specific secreto-inhibitory action to the splanchnic nerve aside from the changes which it causes by being the chief vasomotor nerve to the kidney. As long as the changes produced can be explained entirely as vasomotor phenomena, it is unnecessary to invoke a specific secretory action for the nerve.

This conclusion must not be interpreted to signify that the renal nerves are without profound effect on the excretion of the urine. The sole contention is that the effect is not a direct one on the renal cells. Further evidence of the probable correctness of the nonspecificity of the nervous influences is found in the fact that adequate renal function has been main-

1. Asher, L., and Pearce, R. G.: Ztschr. f. Biologie, 62: 83, 1914.
2. Pearce and Carter: Am. J. Physiol., 36: 350, 1915. Pearce, R. G., in Macleod, J. J. R.: Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1918, p. 519.

3. Marshall, E. K., Jr., and Kolls, A. C.: Studies on the Nervous Control of the Kidney in Relation to Diuresis and Urinary Secretion, I, The Effect of Unilateral Excision of the Adrenal, Section of the Splanchnic Nerve and Section of the Renal Nerves on the Secretion of the Kidney; II, A Comparison of the Changes Caused by Unilateral Splanchnotomy with those Caused by Unilateral Compression of the Renal Artery; III, The Effect of Nicotin on the Secretion of the Two Kidneys After Unilateral Section of the Splanchnic Nerve; IV, Unilateral Ligation of One Branch of One Renal Artery and Unilateral Splanchnotomy; V, Chlorid and Sulphate Diuresis after Unilateral Splanchnotomy, Am. J. Physiol. 46: 302, 317, 326, 335, 339 (July 1) 1919.

tained in animals after the kidneys have been entirely extirpated and then replaced. In such circumstances, of course, the nervous connections have been completely interrupted. The facts cited, furthermore, do not in any way negative the current contention that different substances may produce their diuretic effects in unlike ways. It is commonly agreed that in sulphate diuresis, for example, changes occur in the kidney itself, whereas in chlorid diuresis, changes in the blood supply to this organ are primarily responsible. Sulphate diuresis, in which the renal cells are involved, is accompanied by increased oxygen consumption in the kidney—a result not observed in the diuresis affected by chlorids. Similarly, Marshall and Kolls report that after section of the splanchnic nerve on one side, sodium chlorid produces a greater diuresis on the side operated on than on the normal one. Sodium sulphate, on the other hand, produces an almost equally good response from each kidney. Likewise, compression of one renal artery limits the diuresis from sodium chlorid much more than it does from sodium sulphate.

NEWLY ESTABLISHED FACTS IN THE PHYSIOLOGY AND PATHOLOGY OF THE DUODENUM

Although the small intestine has long been considered the seat of important functions related to digestion and absorption, the clinical interest with respect to it has usually been primarily medical rather than surgical. Since various digestive secretions pour into the upper portions of the intestine, either from the intestinal cells themselves or from the secretory ducts that enter this organ from the pancreas and liver, the changes that are brought about thereby in the chyme are of considerable physiologic significance for the organism. Surgical experiences have been responsible for the gradually acquired belief that the small intestine is something more than the locus of these enzymatic reactions and food absorption. Extensive resections of the bowel have almost always been attended with subsequent nutritive difficulties; and the untoward consequences of acute obstruction in the small intestine, together with the fact that such interference in the upper portions of the bowel are always more serious than in the portions farther along the alimentary tract, have raised the question of a possible specific nondigestive function of the small intestine and the duodenum in particular.

Not long ago, in referring to the observations published in THE JOURNAL by Moorhead and Landes[1] to demonstrate that duodenectomy is compatible with life and perfect health, in the dog, for short periods at least, we pointed out that such experiments, along with many others, definitely disposed of the alleged rôle of the duodenum in relation to diabetes. Further observations made by Mann and Kawamura[2] at the Mayo Clinic not only verify the conclusions already reached but extend the basis for them. The duodenum was removed from the dog, cat, hog, goat and monkey. Careful studies of the dog did not reveal any noticeable changes following the duodenectomy. The animals remained in good condition. Examination of the blood showed it to be normal with regard to cell counts, hemoglobin, carbon dioxid combining power and hydrogen-ion concentration. The roentgen ray showed the course of a standard barium meal to be virtually the same as in a normal dog. The authors add that experiments on the other species have been too recent to allow conclusions to be drawn, but it would seem that the removal of the duodenum in the hog is as innocuous as its removal in the dog. No data have been secured to show that the duodenum is of great importance in any of the species used.

With respect to the obscure rôle of the small intestine in the development of the toxemia following intestinal obstruction, light is also beginning to emerge out of the controversial darkness that has obscured the subject in recent years. Few subjects in experimental surgery and pathology have been the occasion of such lively debate and marked contrasts of opinion. On the one side was the assertion that the mucosa of the upper duodenum has a specific vital function aside from its ordinary digestive and secretory activities, and that disturbance of this function rapidly causes death. From such a standpoint it would be conceivable that obstruction or injury to the duodenum might upset the essential performance of an organ indispensable to life. The new findings regarding the possibilities of harmless duodenectomy negative such a hypothesis.

Opposed to this assertion has been the assumption that the obstructed intestine is the seat of the formation of toxic products. Here, again, there has been no unanimity as to the genesis and nature of the postulated poisons. Are they the results of a perverted mucosal metabolism in necrotic tissue? Do bacteria play a part in their production? Out of the hitherto prevailing uncertainty which the experimental efforts of a considerable number of American investigators have only slowly succeeded in dispelling, a few salient facts seem to be established. These have been summarized recently by Dragstedt, McClintock and Chase[3] of the State University at Iowa City. It now seems improbable that the mucosa cells are ever concerned with the manufacture of a toxic secretion. The presence of bacteria in the lumen of the intestine is necessary for the production of the characteristic toxic substances, and in their absence these substances do

1. Moorhead, J. J., and Landes, H. E.: Duodenectomy, J. A. M. A. 72:1127 (April 19) 1919. Duodenal Diabetes—an Exploded Fallacy, Current Comment, ibid. 72:1682 (June 7) 1919.

2. Mann, F. C., and Kawamura, K.: An Experimental Study of the Effects of Duodenectomy, a Preliminary Report, J. A. M. A. 73:878 (Sept. 20) 1919.

3. Dragstedt, L. R.; Dragstedt, C.; McClintock, J. T., and Chase, C. S.: Intestinal Obstruction, II, A Study of the Factors Involved in the Production and Absorption of Toxic Materials from the Intestine, J. Exper. M. 30:109 (Aug. 1) 1919.

not form. They are produced by the action of the intestinal bacteria on proteins or their split products. In the absence of food, gastric juice, bile or pancreatic juice, these bacteria can produce the characteristic toxic substances from the intestinal juice or from the proteins of desquamated mucosa cells.

It appears, however, that something more than the production of poisonous bacterial products is necessary in the genesis of toxemia associated with intestinal injury or obstruction. These products must be absorbed before they can unfold their toxic manifestations. Various investigators, notably Hartwell[4] and Murhpy,[5] have demonstrated that the toxic contents of the lumen of the obstructed intestine are not absorbed through a normal mucosa. As Dragstedt, McClintock and Chase have likewise noted, injury to the mucosa cells, either as a result of the sudden distention brought about by conditions of obstruction or by any other factors that interfere with the blood supply to the mucosa, is an important factor in the absorption of toxic substances from the intestine.

Granting the sequence of events which include the injury to the mucosa, the formation of toxic bacterial products from proteins or their derivatives, and the consequent existence of conditions favorable to absorption thereof, it becomes evident that the exclusion of the bacterial contamination ought to remove the most serious factor in the sequence of detrimental features. Sterile loops have indeed proved nonnoxious where otherwise toxemia might have been anticipated. The hope of securing a destruction of the ever-present intestinal bacteria is not promising. The Iowa investigators report that it is impossible to sterilize the intestine by the use of chemical antiseptics, even when these are applied directly to the mucosa of isolated segments. The burden of drainage, careful manipulation and avoidance of injury as far as possible is thus thrown on the surgeon in the management of the difficulties just referred to.

4. Hartwell, J. A., and Hoguet, J. P.: Am. J. M. Sc. 148: 357, 1912; Experimental Intestinal Obstruction in Dogs, J. A. M. A. 59: 82 (July 13) 1912. Hartwell, J. A.: J. Exper. M. 15: 139, 1913. Hartwell, J. A.; Hoguet, J. P., and Beckman, F.: An Experimental Study of Intestinal Obstruction, Arch. Int. Med. 13: 701 (May) 1914.

5. Murphy, F. T., and Brooks, B.: Intestinal Obstruction, Arch. Int. Med. 15: 393 (March) 1915.

Public Health Nursing.—There should be very close cooperation between visiting nurse associations and boards of health. There must be no friction. Nurses working under private associations doing tuberculosis, child welfare, ophthalmia and venereal disease nursing should realize that their work is a very important part of the board of health work, and that it can be done best by close team work. An efficient board of directors can be of great value to the nurse and the board of health in developing the work and caring for community problems. Cooperation with the doctors is easily established through the general efficiency of the nurses. There is no group of people who value public health nursing quite as highly as the really competent physicians of the community. Nurses and social workers should work together. The nurse should not do social work when there are social workers to do it, and the public health teaching should be done by the nurse.—M. McGee, *The Commonwealth* 6:107 (May-June), 1919.

Current Comment

SELF-SACRIFICE IN THE WARFARE AGAINST DISEASE

To facilitate the investigation of some of the threatening infectious diseases that were a source of concern to our medical forces during the war, a number of men volunteerd as subjects for inoculation with virus suspected of carrying the etiologic agent of disease. This is not the first time that American manhood has responded so magnanimously to the call of science and preventive medicine. The story of Agramonte, Lazear, Carroll and Reed, who sacrificed themselves in the attempt to discover the mode of transmission of yellow fever, is known to all. While their achievement was not acclaimed with flags or with personal rewards, nevertheless their scientific work and heroism will remain a credit to experimental medicine for all time. Two groups of men modestly made a great sacrifice for their country and for mankind in connection with scientific investigations during the great war. One group offered themselves as subjects for the study of the mode of transmission of trench fever, one of the great puzzles that threatened to work great havoc among the forces at the front. As trench fever apparently is not transmissible to animals, the recourse to human subjects became imperative. The volunteers lent themselves to the demonstration that the blood of trench fever patients is infective, in order to ascertain what element of the blood contains the virus and to discover the relation of the louse to the dissemination of the disease. The story of some of these endeavors and sacrifices has been recorded in the report of the medical research committee of the American Red Cross.[1] It deserves to be told along with the exploits on the Marne and in the Argonne. "Words fail," says the official report, "in attempting to express admiration of the morale and courage of the volunteers. They have more than done their part in addition, by endeavoring to aid in the accuracy of the experiments." Surely such men deserve official recognition for "the sacrifices they have endured in order to save the manpower for the army and to relieve the sufferings of their fellow men." Today trench fever can be controlled. Another volunteer sacrifice has been recorded in the efforts of the army medical staff to find a method of preventive inoculation against measles. No physician need be reminded of the dangers to which this disease subjected millions of men in the two years just past. Here again, in time of need, to quote Major Sellards,[2] who conducted the tests, the individual soldier was found ready and willing to offer his services and accept such risk as was inherent in these inoculations. The nation as a whole may well join a grateful medical profession in reiterating the words of the Surgeon-General to men who, having seen the serious consequences of measles in camp life, for no reward to themselves, gladly accepted the risk simply from a

1. Trench Fever, Report of Commission, Medical Research Committee, American Red Cross, New York, Oxford University Press, 1918.

2. Sellards, A. W.: Insusceptibility of Man to Inoculation with Blood from Measles Patients, Bull. Johns Hopkins Hosp. 30: 257 (Sept.) 1919.

desire to be of service. Aside from the possible danger and suffering, there was the actual discomfort of long isolation cheerfully and conscientiously borne. To these loyal men has gone this tribute:

The Surgeon-General has been informed of the fact that you volunteered for the measles investigation. He desires to express to you his appreciation of the patriotism and devotion to duty that you have shown and to assure you that your contribution to the cause is appreciated by him just as much as was the bravery of the men who went into the fight in France.

QUARRY ACCIDENTS IN THE UNITED STATES

Mining has long been regarded as one of the most dangerous as well as laborious occupations. It is characterized by an exceptional liability to accidents which have been a source of solicitude to students of occupational hygiene. Thanks to the serious consideration given to the subject in many countries by those responsible for the public health, as well as by those to whom the accidents represent an economic factor, the introduction of more effectual safeguards has reduced the hazards considerably. Quarrying is usually classed in the category of industrial dangers along with mining. The Bureau of Mines, which now compiles statistics of the quarry accidents in the United States, reports that these likewise are showing a decrease in the fatality rate.[1] In 1917, the latest year for which data are available, more than 80,000 men were engaged as quarry employees. The number killed per thousand 300-day workers was 1.83 in contrast with an average of 2.19 for the five years preceding. The number of nonfatal injuries, however, has not thus decreased. Out of the various causes of injury in and about quarries, falls and slides of rock or overburden take first place, for they are responsible for more than one quarter of the fatalities. Explosives rank second in respect to danger. Like the schoolboy who manipulates firecrackers, the quarry employee is all too forgetful of the charge and returns too soon to the place of hazard. Premature shots also play havoc with each group of persons. Accidents in haulage claimed 16 per cent. of the fatalities, the further causes including a miscellaneous group of sources of occasional danger. To the intelligent employer and foreman such statistics should prove to be a valuable guide toward the field for future safety work.

TOXIC POTATOES

It is well known that the green and growing parts of the common potato may contain a toxic glucosid, solanin. The edible part, or tuber, of the potato is not likely to exhibit any significant amount of this substance after it has passed the young stage. From time to time, however, the literature has contained reports of severe intoxications in man which seemed to be associated with the use of potatoes as food. One might readily conjecture in such cases that the vegetable was merely the conveyor of the harmful agent—that some adventitious poison or microbial factor had become associated with the potato. In most of the cases recorded, chemical examinations of the latter have been lacking for the particular instances in which it was under suspicion. A recent outbreak of poisoning in which the circumstances clearly implicated the potatoes occurred in Leipzig. The symptoms elicited were characteristic and included abdominal pains, vomiting and diarrhea — manifestations described for previous outbreaks. A chemical analysis of a sample of the same lot of tubers was carried out by Rothe[1] at the hygienic institute of the University of Leipzig. The analysis disclosed the fact that they contained as much as 0.43 gm. of solanin per kilogram of potato, whereas harmless ones usually contain not more than one tenth of this quantity.[2] It should be noted, however, that potatoes which have developed sprouts may, when examined along with the latter, exhibit somewhat larger quantities. In dietary practice, however, the sprouts are removed prior to the culinary use of the tuber. Toxicologic tests on man have demonstrated that as little as 0.2 gm. of isolated solanin may provoke untoward symptoms. This quantity or more might actually occur in the quantum of potatoes that an adult might consume with his meals in the course of a single day. Hence the possibility of solanin poisoning must be reckoned with when potatoes prematurely harvested are used as food.

PROPHECY?

The *British Medical Journal*, in its issue of September 20, states editorially that "General Leonard Wood has been nominated as Republican candidate for the presidency of the United States."

Medical News.

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Midwife Fined.—Mrs. Esther Eichenberg, a midwife of Chicago, is said to have been fined $50 and costs, September 20, for practicing medicine without a license.

Smallpox at Roodhouse.—It is reported that sixty-five cases of smallpox have been discovered at Roodhouse, and that state health officials are enforcing strict quarantine and vaccination.

Second Home Nursing Class Begins.—The second class in training women in the practical art of home nursing, under the auspices of the department of health of Chicago, started, October 5, at 1358 West Fulton Street, with an enrolment of more than 800.

Traveling Health Clinic.—The Cook County traveling health clinic of the Chicago Tuberculosis Institute, during the last four months, has visited thirty-six towns, and has held 111 clinics at which 841 persons have been examined; of these, 352 came for examination of the chest.

Physician Committed to Jail.—It is reported that Dr. Franklin J. Oshay of Ladd was arrested and fined $225 for continuing the practice of medicine after his license had been

1. Fay, A. H.: Quarry Accidents in the United States During the Calendar Year 1917, Technical Paper 213, Bureau of Mines, Washington, D. C., 1919.

1. Rothe, J. C.: Ueber Erkrankungen nach Genuss von solaninhaltigen Kartoffeln, Ztschr. f. Hyg. 88:1, 1919.
2. Meyer: Arch. f. Exper. Path. u. Pharmakol. 36.

revoked by the Department of Registration and Education of Illinois. On failure to pay the fine he was committed to the county jail to serve it out.

Personal.—Dr. Walter H. Meents, Chicago, for the last six years instructor in surgery in Rush Medical College, has recently been appointed assistant professor of surgery in the University of Illinois College of Medicine.——Dr. Wilson R. Abbott, Springfield, October 6, succeeded Dr. Leo J. Jacobson as clinician to the Cook County traveling health clinic of the Chicago Tuberculosis Institute.

Honors to Medical Officers.—Thirty-one members of the Sangamon County Medical Society who served in the world war were guests of honor at a banquet given by several professional brethren at the St. Nicholas Hotel, Springfield, September 23. Dr. John W. Kelley was toastmaster.——Members of the Peoria County Medical Society gave a dinner at the University Club, October 7, in honor of the members of the society who served in the army during the great war.——The twenty-six medical service men of Vermilion County were honored by a banquet given by the Vermilion County Medical Society, in Danville. Dr. Jasper M. James, Henning, president of the society, presided as toastmaster.

Recent Developments in Tuberculosis Campaign.—Appropriations and tax levies totaling considerably more than $1,000,000, to be used exclusively in tuberculosis work, were made by the boards of supervisors in thirty-two counties in September. In four of these counties tuberculosis sanatoriums are either in operation or well under construction. The funds provided in September will assure the building of fifteen additional sanatoriums next spring. In the remaining counties where the appropriation was not sufficient to provide funds for building next year, the money will be used to finance community nursing service, to operate free tuberculosis clinics and dispensaries and to lay the ground work for sanatoriums to be constructed in 1921. This activity by the various county boards is the result of a far reaching educational, publicity and health promotion campaign conducted by the Illinois Tuberculosis Association and its several local societies. The appropriations and tax levies referred to above are made under the provisions of the county tuberculosis sanatorium law which makes it compulsory on county boards to levy taxes for tuberculosis work whenever the proposal has been carried at a general county election. Among the many noteworthy sections of this law is that which completely removes the tuberculosis campaign from any vestige of pauper relief. The personnel of the board in charge of the funds must have no connection with the management of the almshouse or the county farm and the sanatoriums constructed by the board must be entirely distinct and separate in every way from any institution dealing with indigent cases. It is the spirit of the law that the sanatoriums, clinics and nursing service financed through funds thus provided by taxation following a popular referendum, shall be for the free use of all the tuberculous people of the county in the same way that the public schools, the police and fire departments and the public libraries are for the free use of all the people.

MARYLAND

Personal.—Harry B. Gantt, Capt., M. C., U. S. Army, Millersville, who for the last two years has been serving on the staff of the Tooting Military Hospital in London, has been transferred to Germany for special duty at Evacuation Hospital No. 27, Coblenz.——George Walker, Col., M. C., U. S. Army, Baltimore, who went to France with the Johns Hopkins Hospital Unit and was placed in charge of sanitation and venereal disease problems at debarkation ports, and who, since the signing of the armistice, has been in England engaged in similar work, has returned home on leave.

Six Months' Record of Presbyterian Dispensary.—With a total of 13,308 admissions to the dispensary for the first six months of this year the semiannual report of the activities at the Presbyterian Eye, Ear and Throat Hospital, just made public, reveals a splendid growth in the important work of the East Baltimore institution. During the first six months of the year alone nearly as many patients were treated for all ailments as during 1918, when a total of 15,345 were admitted. Of that number 850 were assigned to beds, where they spent an aggregate of 1,857 days. The unusual number of 4,703 new cases applied for treatment.

Quarantine Lease Approved.—The treasury department has approved the new lease with Baltimore city for the quarantine station and its continued operation by the U. S. Public Health Service. The secretary of the treasury also renews the agreement on the part of the government to buy the station and its equipment for $177,000 as soon as Congress makes the appropriation. Under the terms of the new lease the government is to send to the city for persons having smallpox or other maritime quarantinable diseases and to treat them at a cost of $1 a patient per day. For the use of the station and grounds, the government will pay the city the nominal rent of $1 a year during the life of the lease.

Conference on Tuberculosis.—Militancy in the state fight against tuberculosis was the keynote of an all-day conference for better health in Maryland held in Baltimore under the auspices of the Maryland Tuberculosis Association during the past week. This meeting formally launched the Red Cross Christmas Seal campaign. Sir Arthur Newsholme, resident lecturer on public health administration in the School of Hygiene and Public Health, was the principal speaker and favored the adoption of the militancy in gaining the attention of the public and the legislators to this campaign for the public health. Dr. William H. Welch also addressed the conference and emphasized the facts that Maryland has always been a leader in the fight against tuberculosis; that the first meeting of the National Tuberculosis Association was held here; that the first tuberculosis exhibit was held here under Dr. Fulton's direction; that the Maryland Association was the first to engage a tuberculosis nurse, which was the beginning of the public health nurse of today, and that Maryland was a leader in institutional segregation of tuberculous patients. At the morning session, Dr. Martin F. Sloan, Baltimore, superintendent of Eudowood Sanitarium, startled the conference with the statement that perhaps *27* per cent. of the new cases of tuberculosis developed from influenza and that influenza at the present time was perhaps the greatest single predisposing cause of tuberculosis.

MASSACHUSETTS

The Study of Influenza.—The establishment of a fund of $50,000 by a corporation, which suffered heavy losses as a result of the epidemic last year, is responsible for the research work at Harvard University Medical School to prevent the recurrence of the disease. The greater portion of the fund will be used by Milton Joseph Rosenau, professor of preventive medicine and hygiene, and his assistants in research work as to the cause, prevention and complications of the disease.

Hospital to Open.—The Brooks Cubicle Hospital, Brookline, a temporary structure with ten cubicles, and named in honor of Dr. William A. Brooks, surgeon-general of Massachusetts, who was one of the leaders in last years' fight against influenza, was opened, October 6. The hospital is intended primarily for pneumonia patients, but will be used for influenza patients if necessity arises and will be headquarters for antiinfluenza work throughout the state. Dr. Thomas M. Durrell, Somerville, is chief of the medical staff.

Hugh Cabot to Leave Boston.—Dr. Hugh Cabot, Boston, at present clinical professor of genito-urinary diseases in Harvard University School of Medicine, chief surgeon of the surgical service at Massachusetts General Hospital and director of clinics of the state board of health, who went to England in 1916, with the Harvard Unit and commanded General Hospital No. 22, British E. F., with rank of lieutenant-colonel, and was made Companion of the Order of St. Michael and St. George, has been appointed chief surgeon at the University of Michigan, Ann Arbor, and will take up his new duties early next year.

Personal.—Dr. Ernest L. Hunt has been appointed director of surgical service and Dr. Edward B. Bigelow, director of medical services at the Worcester Hospital, and will give their entire time to the service of the hospital.——Dr. Henry A. Christian, Boston, Hersey professor of the theory and practice of physic, in the Harvard University Medical School, and physician in chief of the Peter Bent Brigham Hospital, has been granted leave of absence to serve for a year in Washington, D. C., as chairman of the division of medical science, National Research Council, and began this work, October 1.——Dr. Isaac Alcuzar, Roxbury, Boston, has returned after sixteen months' service in Palestine as eye, ear, nose and throat specialist with the American Zionists Unit for Palestine, working under the British Expeditionary Forces.——Dr. Thomas F. Kenney has been appointed chief medical inspector of the public schools of Worcester.——Dr.

Nathaniel P. Breed, Lynn, has been appointed medical examiner (coroner) for the Ninth Essex District to take the place of Dr. J. Armand Bedard, who has resigned to take up Red Cross work in France.——Dr. Joseph B. Howe has been appointed associate medical examiner (coroner) for the Second Berkshire District to succeed Dr. John Flynn, Boston, whose term has expired.——Dr. Joel E. Goldthwaite, who was in charge of the Development Battalion of the Twenty-Sixth Division, was presented with the Distinguished Service Medal by Major-Gen. Clarence R. Edwards, September 20. The citation read, "The award is made for special work in organizing the development section in France."

MICHIGAN

Statistician Dead.—Herman F. Boldt, Detroit, since 1893, statistician of the local board of health, aged 63, died at French Lick, Ind., September 13.

Personal.—Dr. James H. Wellings, after more than thirty years of practice in Lansing, has moved to Hollywood, Calif., where he purchased a winter home some time ago.——Dr. Albert H. Garvin has been appointed head of the new tuberculosis sanatorium for Detroit, which is under construction at Northville.

MINNESOTA

Southern Minnesota Medical Meeting.—The annual meeting of the Southern Minnesota Medical Association will be held in Mankato, December 1 and 2, under the presidency of Dr. Henry W. Meyerding, Rochester.

Physicians Plan Sanatorium.—At a meeting of the Range Medical Association held at Virginia, September 5, the chief subject of discussion was the establishment of the proposed sanatorium for St. Louis County, which it is expected will be erected on the range.

Personal.—Dr. John E. Soper, Minneapolis, has been elected chairman of the Theodore Peterson Post of the American Legion.——Dr. Bret V. Bates, Wheaton, has received the Distinguished Service Cross, which was awarded for unusual bravery while under fire, in October last. Captain Bates and a number of volunteer stretcher bearers had been ordered to fall back on account of heavy fire, but remained, and evacuated all the wounded safely before daylight.

Dreyer Lectures in Medicine.—A special series of three lectures will be given at the Institute of Anatomy, Minneapolis, by Dr. Georges Dreyer, professor of pathology, Oxford University, at 4 p. m., October 8, 9 and 10. The subjects of the lectures are:

October 8, "Some General Principles in Mathematics and Their Application to Medicine."

October 9, "Their Principles in the Study of Respiration and Circulation."

October 10, "Their Relation to Metabolism in Health and Disease."

NEW YORK

Typhoid on Long Island.—An epidemic of typhoid fever is reported in Port Jefferson and vicinity, where twenty cases are reported, with thus far, one death.

New York State's Potential Loss in Population.—In a statement issued, October 2, Dr. Hermann M. Biggs, state commissioner of health, estimates that the state has sustained a loss of approximately 90,000 population in the past eighteen months, which is attributable to the influenza epidemic and the decline in the birth rate. The marked decline in the birth rate is due partly to war conditions and partly to the influenza epidemic, and the loss due to this cause is placed at 36,000. There was an excess mortality of 51,000 due to the influenza epidemic, which would bring the total loss to nearly 90,000. The birth rates for July and August were 18.7 and 18.8, respectively, the lowest since reliable data have been available. The death rate for July and August was likewise the lowest on record.

New York City

Harvey Society Lectures.—The first lecture of the Harvey Society series will be delivered at the New York Academy of Medicine, October 18, at 8:30 p. m., by Lieut.-Col. Georges Dreyer, M.D., professor of general pathology in Oxford University, on "Biological Standards and Their Application to Medicine."

Women Physicians at Academy of Medicine.—The delegates to the International Conference of Women Physicians now in session in this city were the guests of the Women's Medical Association of New York City at the Academy of Medicine, the evening of October 1. Dr. Emily Dunning Barringer, president of the association, presided. The guests were welcomed by Dr. George David Stewart.

Personal.—Col. Fred H. Albee sailed on the *Mauretania*, October 2, as official representative of the Medical Corps of the U. S. Army to the Interallied Congress in Rome. He expects to return about November 1.——Dr. George W. Jean has located in Santa Barbara, Calif.——Dr. John C. Murphy, for several years visiting gynecologist to St. Johns and the St. Louis city hospitals, has been released from military service.

Plan to Enlarge Beth Moses Hospital.—The Beth Moses Hospital at Stuyvesant Avenue and Hart Street, Brooklyn, which will be completed by Jan. 1, 1920, now plans to erect another wing which will provide an additional 150 beds. Up to the present time $300,000 has been expended on the hospital and another $150,000 will be needed before the hospital is opened. A campaign to raise this sum was begun, October 1. Dr. Isaac Levin is president of the hospital.

Health Department Favors Daylight Saving.—At a hearing held before the board of aldermen, October 3, regarding the proposed daylight saving ordinance, Health Commissioner Royal S. Copeland headed a delegation that advocated the passage of the measure. In his arguments in support of the ordinance he said he represented the 700,000 poor children of the tenements and that this additional hour of sunlight is a great benefit to them. He expressed the opinion that the benefits accruing to public health are alone sufficient ground for the passage of the ordinance.

Women's Motor Corps Will Assist Health Department.—Dr. Royal S. Copeland, health commissioner, announces that Col. Helen Bastedo, commander of the Motor Corps of America, has placed at the disposal of the health department the entire transport service of her organization. Dr. Copeland states that the services rendered by the Motor Corps throughout the epidemic of influenza last year in conveying doctors, nurses, invalids, and food supplies was a great help, and that the services of the organization will be utilized in a similar way in the event of an epidemic this year. The facilities that have been made immediately available will be used for the transportation of drug patients to the narcotic hospital on North Brothers' Island.

Diseases Under Investigation at the Rockefeller Institute.—The Hospital of the Rockefeller Institute for Medical Research confines its work to selected cases that bear on a limited number of subjects chosen for investigation. In line with this policy a bulletin has been issued stating that during the autumn and winter the diseases that will be the subject of special study are as follows:

1. Acute lobar pneumonia and other acute pulmonary infections, influenza, bronchitis, bronchopneumonia, etc. 2. Cardiac disease, especially the more advanced stages of heart failure. Patients showing completely irregular pulse and suffering from fibrilation of the auricles are especially desired. 3. Acute rheumatic fever, patients with acute polyarthritis and children with recurring endocarditis, pericarditis, and myocarditis of supposed rheumatic origin, and those with chorea, polyarthritis and acute cardiac complications. 4. Nephritis. It is desired to admit patients with acute nephritis and young persons or those in early adult life suffering from chronic nephritis of only moderately severe grade. Physicians desiring to send such patients should communicate with the resident physician.

Institutional Treatment of Drug Addiction.—The *Weekly Bulletin* of the department of health of October 4 reports that, though the department's Riverside Hospital in which drug addicts are being treated, has been in operation for only a month, its methods have been attended with marked success. The capacity of the hospital is 523 men and 100 women. To date, more than 500 of these patients have been taken entirely off the drug to which they have been habituated and more than 200 of these, apparently cured, have been discharged to their homes. The treatment consists of elimination and reduction of the drug on admission to from 1½ to 3 grains a day. Morphin is used in the hospital irrespective of the drug to which the patient is habituated. At the end of four or five days scopolamin anesthesia is produced by hypodermic administration, and the patient then taken entirely off his drug, which in more than 99 per cent. of the cases treated has been heroin. The report states that the striking result of the treatment is the demonstration of the rapidity with which the drug may be withdrawn entirely, without disturbance of the patient's well-being and without producing nervous manifestations.

OHIO

Dr. Holmes to Retire from Practice.—Dr. Christian R. Holmes, dean of the Medical College of the University of Cincinnati, who is now under treatment in a hospital in New York City, has announced his intention of retiring from practice and will devote his entire time to the work of the college.

Personal.—Dr. Otto T. Behrer, Dayton, has been appointed city chemist by the Cincinnati Board of Health, succeeding Dr. E. M. Meyer, retired.——Dr. John McCartney, Girard, the oldest medical practitioner of Trumbull County, was given a surprise party at his home, September 25, in honor of his eightieth birthday anniversary.

Hospitals Registered in Ohio.—Registration blanks are now being sent out to all hospitals and dispensaries in the state, asking for details as to number of beds available, kind of cases taken, etc. A bill passed at the last general session of the Ohio legislature requires that this information shall be collected and collated by the state department of health. Maternity hospitals have been registered and licensed in Ohio for a number of years, but this is the first time that full information has been sought concerning the number and kind of hospitals and dispensaries operating in the state.

District Society Meeting.—At the annual meeting of the Second Councilor District Medical Association at Dayton, September 25, Dr. Harrie B. Martin, Springfield, was elected president; Dr. Elmer R. Arn, Dayton, secretary, and Dr. Herbert C. Haning, Dayton, treasurer. A course of graduate instruction under the direction of medical teachers of national repute was conducted under the auspices of the Councilor District Society, September 22 to 26. This course was made available to the 500 physicians practicing in the eight counties included within the district.

Trachoma Clinic in Portsmouth.—Surg. John McMullen of the United States Public Health Service is holding a very successful trachoma clinic in Portsmouth. A survey of all the schoolchildren is being made by Drs. Joseph L. Goodwin and Ross Hopkins of the Public Health Service and state department of health, respectively. So far, among Portsmouth schoolchildren less than 1 per cent. have been found to have trachoma, while in the rural schools the percentage has reached 3. More than forty patients were present the first day of the clinic, and the attendance has continued high. This is the second trachoma clinic to be held in Ohio; the first was held at Waverly in Pike County two years ago. There is now evidence that some of the river counties in Ohio are just as much affected by trachoma as are counties in Kentucky, and the Ohio State Department of Health is planning a campaign of detection, education and prevention.

Public Health Organization in Ohio.—The counties in Ohio are organizing rapidly under the Hughes Act, a bill passed by the last general session of the Ohio legislature. Each county will be known as a general health district and will have a full-time health commissioner, public health nurse and clerk. Each city having a population of 25,000 at the last federal census will be known as a municipal health district. The mayors of municipalities and presidents of township trustees of a county constitute the district advisory council which appoints a board of health of five members, two of whom shall be physicians, one a lawyer, one a farmer, and the fifth not specified. So far, eighty-four of the eighty-eight counties have organized and appointed a board of health, and in thirty-eight counties the board of health has organized and made a budget. All of the budgets so far reported call for a larger organization than the minimum prescribed by the Hughes Act. The demand for public health nurses is especially large, many counties asking for six or seven. The salaries apportioned for health commissioners are adequate, and experienced men should be secured. These are appointed from civil service lists of candidates examined by the state civil service commission. In only one county has there been definite opposition to the Hughes Act, and provision is made for the state health commissioner to appoint a board of health when the local authorities fail or refuse.

PENNSYLVANIA

New Society Organized.—The physicians of the Allentown and Eastern hospitals and St. Luke's Hospital, Bethlehem, have organized a clinical society with Dr. Edgar M. Green, Easton, president, and Dr. William L. Estes, Jr., South Bethlehem, secretary and treasurer.

Hospital Notes.—The State Hospital, Nanticoke, has secured thus far $40,000 in its drive for $75,000 for the erection of the nurses' home.——The Fountain Springs State Hospital raised $4,000 in one day for the equipment of a new ward.——The people of Pottsville are contemplating the erection of an addition to the home for nurses to cost $60,000.——Trustees of the State Hospital, Hazleton, are planning to build a nurses' home to cost $75,000, of which $25,000 has been given by the state.

Hospitals Attack Suit Against State Aid.—September 30, thirty-six attorneys representing hospitals and homes from all parts of the state appeared before Judge Kunkel and Judge McCarrell of the Dauphin County Court at the hearing on the suit instituted to prevent the state from paying funds to sixty-six institutions to which the last legislature voted appropriations. The suit seeks to restrain the state from paying out its funds to the various institutions named, all of which are sectarian, was filed by Willis Collins of Delaware County, representing the antisectarian appropriation association. About $2,000,000 is involved.

Personal.—Dr. Walter Lathrop, surgeon-in-chief of the Hazleton State Hospital, who has been ill for three months and has undergone several surgical operations, has gone to the seashore for recuperation, and the work of the institution is in charge of Dr. Robert A. Gaughan, assistant surgeon.——Dr. Edgar B. Doolittle, Hazleton, who has been seriously ill at his home, is reported to be improving.——Dr. William D. Cleland, Harlansburg, who moved recently to New Castle, has been appointed medical director of the New Castle public schools.——Drs. Calvin L. Johnstonbaugh, Bethlehem, and Irvin D. Metzger, Pittsburgh, have been appointed members of the state bureau of medical education and licensure.——Dr. Lyndon H. Landon, formerly surgeon to the Carnegie Steel Company and more recently connected with Base Hospital No. 115 at Vichy, France, has been elected general and neurologic surgeon on the staff of the Western Pennsylvania Hospital, Pittsburgh.——Dr. Davenport Hooker has been appointed head of the Pittsburgh School of Anatomy and professor of anatomy in the University of Pittsburgh.——Dr. Harry G. Clarke, Pittsburgh, has been appointed superintendent and medical director of the City Poor Farm, Mayview.

Philadelphia

Nurses to Go to China.—After serving fifteen months overseas with the Jefferson Hospital Unit, three Philadelphia nurses will leave, October 10, for duty in the Shanghai Hospital.

Course in Public Health Nursing.—The Visiting Nurse Society has offered a two months' course in public health nursing to pupil nurses of the hospitals of Philadelphia. Eleven pupil nurses from various city hospitals have already applied. This course is only open to pupil nurses during their last year of hospital training, and should these nurses desire to take up a postgraduate course at the Pennsylvania School of Social Service on their graduation from the hospital, they will be given credit for the work done while attending class at the Visiting Nurses' Society.

Personal.—Dr. J. Thompson Schell, chief surgeon of the Northwestern Hospital, sailed for London, October 2.——Dr. Charles K. Mills, chief of staff at the Philadelphia General Hospital and founder of the neurologic department of that institution, has resigned after forty-two years' service. Dr. Mills will continue as consultant to the neurologic department.——Dr. James W. McConnell, head of the neurologic department at the University of Pennsylvania and for many years connected with the Philadelphia General Hospital, has been appointed to succeed Dr. Charles K. Mills.——Dr. Eugene J. Aasnis, professor of pathology and bacteriology in the school of medicine at Temple University, delivered the introductory address, October 2, to the students of the department of medicine, dentistry and pharmacy of that institution in the college building, Eighteenth and Buttonwood streets. Dr. Aasnis has just returned from overseas service. He was professor of pathology and bacteriology in Baume, at the American University for the expeditionary forces.

CANADA

Personal.—Dr. Norman K. Wilson has returned from overseas and resumed practice in Toronto confining his work to diseases of the nose and throat.——Dr. Edwin C. Beer, Brandon, Man., latterly medical officer to the Royal Flying Corps, has commenced practice in Toronto.

University News.—There are more than 400 entrants in medicine in the University of Toronto.——The total registration to date in McGill University, Montreal, is more than

2 000 in all faculties.——Drs. Henry T. Machell, Allan M. Baines, Geoffrey Boyd, and others have resigned from the teaching staff of the department of medicine of the University of Toronto.

Hospital Items.—General Mewburn, minister of militia for Canada, announced in the House of Commons, recently, that that total number of Canadian hospital patients still overseas was 126; he also announced that there were still 6,598 hospital patients in the military hospitals throughout Canada. ——Dr. Duncan A. L. Graham, the newly appointed professor of medicine in the University of Toronto, has been appointed chief physician to the Toronto General Hospital; Dr. John A. Ollie is to have charge of the heart clinic; Dr. Fred W. Rolph of the gastro-intestinal department; Dr. Goldwin W. Howland of nervous diseases; Drs. George S. Young and George S. Strathy of general medicine; Dr. Harold C. Parsons of tuberculosis; Dr. Charles K. Clarke of the psychiatric department; Dr. Robert D. Rudolf of therapeutics, and Dr. William Goldie in charge of indoor patients' ward. No surgical appointments have yet been announced.

GENERAL

Warning.—It is reported that a man representing himself as a physician is making the rounds of physicians' offices in the East, with an electrical diagnostic set on which he collects a deposit, promising delivery in five days. The delivery is not made. He claims to come from Springfield, Mass., and is said to be wanted by the police.

Medical Periodicals Delayed by Strike.—The medical periodicals published in New York City have not appeared for the week of October 4 on account of the strike of certain organizations of printers and employees which have tied up completely the offices in which they are employed. It is expected that 152 weekly periodicals published in New York City will fail to come out this week.

Relief of Civilian Employees.—A bill providing that civilian employees of the federal government suffering with tuberculosis shall be admitted to the hospitals of the Army, Navy and U. S. Public Health Service has been reported by the Senate Committee on Public Health and Quarantine with the recommendation that it pass. It was introduced by Senator Morris Sheppard of Texas, and has the indorsement of the U. S. Public Health Service.

Gynecologists Organize World Body.—At the conference of gynecologists held in Brussels, Belgium, the last week in September, the International Association of Gynecologists and Obstetricians was organized, and it was decided to hold the first meeting in America, 1922. The following officers were nominated: president, Dr. Franklin H. Martin, Chicago; secretary-general, Dr. Frank F. Simpson, Pittsburgh; councilors, Drs. J. Riddle Goffe, New York, Thomas J. Watkins, Chicago, and George Gray Ward, Jr., New York.

American Public Health Association Meeting.—The American Public Health Association will hold its forty-eighth annual meeting in New Orleans, October 27 to 30. Committees of specialists have been organized to answer questions and give advice on milk supply, influenza, public health nursing, tuberculosis, health legislation, water supply, industrial hygiene, child hygiene, malaria, personal hygiene, etc. An important part of the program will be the papers and discussions on the coordination and enlargement of federal health activities.

Tuberculosis Foes Meet.—At the meeting of the Mississippi Valley Conference on Tuberculosis, held in Des Moines, Iowa, September 22 to 24, under the presidency of Sherman Kingsley, Cleveland, the following officers were elected: president, Dr. John H. Peck, Des Moines, Iowa; vice president, W. McM. Miller, St. Louis; secretary, Dr. Arthur T. Laird, Duluth, Minn., and councilors, Sherman Kingsley, Cleveland; Dr. James W. Pettit, Ottawa, Ill.; Dr. Ethan A. Gray, Chicago; R. J. Reed, Des Moines, Iowa (reelected); Dr. Eugene B. Pierce, Howell, Mich.; Dr. Alfred Henry, Indianapolis, and Mrs. P. Wanzer, Armour, S. D.

Bequests and Donations.—The following bequests and donations have recently been announced:

Methodist Hospital, Philadelphia, $1,000, by the will of Louise M. Pepper.

St. Vincent's Hospital, New York, $5,000; New York Foundling Hospital, $1,000; Columbus Hospital, St. Elizabeth's Home for Crippled Children, St. Ann's Convalescent Hospital, New York Institute for Blind, Home of Rest for Consumptives, and New York Skin and Cancer Hospital, each $500, by the will of Margaret A. Howard.

Presbyterian Hospital, New York, $200,000, and Sloan Maternity Hospital, $80,000, by the will of General Horace W. Carpenter.

Presbyterian Hospital, New York, $2,000, by the will of Miss Mary M. Roberts.

Clinical Congress to Meet.—The ninth annual meeting of the Clinical Congress of the American College of Surgeons will be held in New York, October 20 to 24, under the presidency of Dr. William J. Mayo, Rochester, Minn. The program includes papers by Sir Anthony Bowlby, London, on "Fractures of the Femur"; Harvey Cushing, Boston, on "Brain Tumor Statistics"; Alexis V. Moschcowitz, New York, on "Empyema, with Particular Reference to Its Pathogenesis and Treatment"; George W. Crile, Cleveland, on "Surgical Treatment of Exophthalmic Goiter"; Sir Robert Jones, Liverpool, England, on "Stiff and Flail Joints"; Otto P. Geier, Cincinnati, on "The Physician and Surgeon in the Industrial Era"; Dr. John B. Deaver, Philadelphia, on "The Acute Abdomen"; Major Gillies, R. A. M. C., Sidcup, England, on "Plastic Operations for Facial Burns," and C. Jeff. Miller, New Orleans, on "Radiotherapeutic and Other Methods for Treatment of Cancer of the Uterus."

Investigation and Prevention of Influenza.—The Senate Committee on Public Health and National Quarantine has made a favorable report to the senate on a measure introduced by Senator Warren G. Harding of Ohio for the investigation and prevention of influenza and similar diseases. The committee has recommended that the appropriation for this work be $1,000,000 instead of $5,000,000 as provided in the measure as introduced. The committee also adopted an amendment providing "that any allotment of funds to universities, colleges or other suitable research institutions shall not be limited to any one school of medicine." The work is to be carried on under the supervision of the U. S. Public Health Service. The medical departments of the Army and Navy are authorized to cooperate in the work of "investigating influenza and allied diseases in order to prevent their causes and prevent their spread." The secretary of the treasury is authorized to expend a part of the money appropriated for research work on this subject in such research institutions as are qualified. The measure is now on the senate calendar for consideration and may be called up for action at any time.

Prevention and Control of Drug Addiction.—A bill to provide aid from the United States government for the several states in the prevention and control of drug addiction and the care and treatment of drug addicts has been reported favorably by the Senate Committee on Public Health and National Quarantine. The measure as amended by the committee appropriates a sum of $3,000,000 for the fiscal year ending June 30, 1920, and $2,000,000 for the year ending June 30, 1921, to be available for the various states when they have raised an amount equal to that requested of the federal government. The expenditure of 10 per cent. of the annual appropriation is authorized to collect and spread information in regard to the care and treatment of drug addicts and for administration purposes. The bill has the indorsement of Secretary of the Treasury Carter Glass who has said that "it will meet what must be regarded as a critically serious situation developing out of enforcement of amendments to the Harrison Narcotic Act." The war and navy departments are authorized to transfer temporarily hospital buildings and equipment for the care and treatment of drug addicts. The various state boards of health or narcotic commissions are expected to cooperate with the U. S. Public Health Service in taking advantage of the provisions of the measure. It may be called up for action by the senate whenever the senate is considering general legislation. The bill was introduced by Senator Joseph I. France of Maryland, chairman of the Senate Committee on Public Health and Quarantine, by which committee it was reported favorably.

FOREIGN

Nurses Win Greek Decorations.—Eight nurses of the American Red Cross have been decorated by King Alexander of Greece with the Medal of Military Merit for their work in fighting the typhus epidemic in Macedonia.

Mobile Hospital Functioning in Roumania.—The autochir, the mobile hospital purchased by the American Red Cross for the American E. F. at a cost of $400,000, has been sent to Roumania. It was intended for France, but the signing of the armistice ended the need there, and when Queen Maria of Roumania appealed for help from the Red Cross, it was decided to send it to the aid of that diseased and impoverished nation. The hospital was sent by ship from America

to Bologna, Italy, and thence on its own wheels to Bucharest under the care of Col. George de Tarnowsky of the American army. The autochir consists of a roentgen-ray truck, an electrogenic group with accessory parts, a heating plant, a rolling machine-shop, an electric lighting plant, an operating room with plate glass cabinets containing every known surgical instrument, ambulance trucks containing beds for twenty patients, four ambulances capable of accommodating six severely wounded or twelve slightly wounded men, tent hospital trucks, an acetylene truck for lighting the hospital, store-room trucks with large supplies of blankets, cots, sheets, dressings and drugs. There is also a large truck which contains sleeping rooms for physicians, nurses and interns. Eighteen huge trucks resembling American moving vans constitute the complete hospital. It has moved up near the Roumanian army, where it is functioning with speed and efficiency.

Hospitals in Siberia.—Col. R. B. Teusler, Red Cross commissioner to Siberia, has recently reported on the American Red Cross hospitals in that country.——In response to the dire need caused by the epidemics of typhus, cholera and pneumonia, a new hospital was established at Irkutsk.——There is a 100 bed hospital in Tchilyabinsk in the Ural Mountains, which was opened by the American Red Cross and later became an important base hospital for the all-Russian government.——At Omsk, the capital of the Kolchak government, a 1,000-bed hospital is being operated, and at Petropavlovsk a typhus hospital was equipped and given to the government.——There is a 200-bed hospital at Tomsk, given to the government by the University Clinic and operated by the Red Cross.——At the request of the mayor of Novonikolaevsk, the Red Cross opened a hospital in the Commercial Club of that city, which operated during the typhus epidemic.——Important work in the extermination of contagious diseases was done by the Red Cross workers at Siberian railway stations. Delousing plants, disinfecting apparatus and clothing dispensaries were conducted.——An antityphus train traveled over more than 4,000 miles in Siberia to stop the spread of typhus, and is now being operated under direction of the same American Red Cross workers on the Perm front. The expense of this train was at first assumed by Allied sanitary commissions and was managed by the American Red Cross, which now has assumed the entire responsibility of the train.——At the request of the Czecho-Slovak national council, work was started by the Red Cross in eastern Siberia. A commission consisting of twenty-five physicians and thirty-five nurses was sent at once to that portion of the country. This group has since been augmented, and a large staff is now at work among the Siberian population.

LATIN AMERICA

Election of Officers.—The Medical Society of Valparaiso, Chile, has elected the following officers: president, Dr. Vicente Dagnino; vice president, Dr. Guillermo Munnich; secretary, Dr. Gastón Lachaise, and treasurer, Dr. Miguel Manriquez.

Child Hygiene in Peru.—Under the title "Asociación protectora de la Infancia" there has been formed at Lima, Peru, a child hygiene association. Its officers include the following: president, Dr. R. Neuhaus; vice president, Dr. Oscar Miró Quesada; secretary, Dr. Carlos Enrique Paz Soldán, and treasurer, Mr. Carlos D'Abreu Argote.

Anniversary of the Medical Society of Santiago de Chile.—The Medical Society of Santiago, Chile, celebrated last September the fiftieth anniversary of its foundation. In connection with the celebration there was published a special number of the *Revista Médica de Chile* which is the organ of the society. The officers of the society for the year 1920 are as follows: president, Dr. Germán Valenzuela B.; vice president, Dr. Luis Vargas Salcedo; secretaries, Dr. Hugo Lea Plaza and Dr. Eugenio Cienfuegos, and treasurer, Dr. Juan D. Montenegro.

Typhus Fever in Chile.—According to a statement published by the Department of Interior of Chile, there were admitted to the hospitals at Santiago, Chile, from October, 1918, to June 30, 1919, 4,235 cases of typhus fever of which 852 died. During the first fifteen days of July there were 190 cases admitted with thirty-three deaths. During the first six months of the year 1919 the general mortality at Santiago was 9,993 exceeding by 2,249 the number of deaths for the same period in 1918. This increase is due to the present epidemic of typhus fever. The data collected by the Department of Public Health show that the disease has been endemic in Chile for the last thirty years.

CORRECTION

Error in Article on Extra-Uterine Pregnancy.—In the article by Dr. Alfred C. Beck, Brooklyn (THE JOURNAL, September 27, p. 963), the legends of Charts 2 and 3 are reversed. That which appears under Chart 2 should accompany Chart 3, and vice versa.

Government Services

Personnel of the Army Medical Corps

On Oct. 3, 1919, the Medical Corps contained 4,837 medical officers, a decrease from the previous week of 459. The Reserve Corps contained 3,509 officers. The total number of officers discharged since the beginning of the war is 27,622.

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA
Los Angeles—McDonald, T. G.
San Francisco—Geetesch, A.
Vian, B. H.

CONNECTICUT
Meriden—Healy, J. B.

KANSAS
Eskon—Campbell, F. B.

KENTUCKY
Auburn—Helm, J. B.

MAINE
Portland—Moulton, B. E.

MASSACHUSETTS
Hyde Park—Cullen, C. A.
Nantucket—Blue, J. J.
Worcester—Adams, W.

MINNESOTA
St. Paul—Benepe, L. M.

NEW JERSEY
Garfield—Blemby, C. B.

OHIO
Cleveland—Linden, J. E.

PENNSYLVANIA
Philadelphia—Conley, H. D.
Enion, G. A.
Shaar, C. M.

SOUTH CAROLINA
Charleston—Beach, M. W.

TEXAS
Gidding—Gates, C. S., Jr.

VIRGINIA
Norfolk—Hart, J. A.

Foreign Correspondence

RIO DE JANEIRO LETTER

RIO DE JANEIRO, Aug. 30, 1919.

Statistics of Influenza

The public health department recently published the full statistics of the epidemic of influenza which swept over Rio de Janeiro in October, 1918. That month, 11,458 deaths occurred in Rio: 6,344 males and 5,144 females; 950 persons from 0 to 1 year old; 752; from 1 to 2 years; 1,159 from 2 to 5 years; 877 from 5 to 15 years, and 7,473 over 15 years. The average death rate was 369.61. The first cases occurred in the beginning of the month, and by October 12, ten deaths had been reported. The epidemic spread rapidly over the city. Nine hundred and thirty deaths were registered ten days later, after which date the death rate declined, 753 on the 23d, 729 on the 24th, 621 on the 26th, etc., altogether 8,817 in twenty days. The epidemic was not considered past till the middle of November. Up to the middle of November there were still many deaths, after which time the epidemic was considered extinct.

Brazilian Physician Honored with an Invitation by the President of Bolivia

Dr. McDowell of Rio de Janeiro, whose works on beriberi, yellow fever, hookworm disease, spirochetosis icterohemorrhagiae, etc., are well known in both domestic and foreign medical circles, has received an invitation from the Bolivian government to give a series of lectures on tropical diseases.

New Professor in the Medical School

Dr. Rocha Vaz was chosen professor in the medical school in the place of the late Miguel Pereira. Thirteen members of the congregation voted for him; five for Dr. MacDowell; four for Dr. Clark, and one for Dr. Romeiro.

Rural Prophylaxis

The secretary of the interior has given instructions establishing seventeen posts for the suburbs of Rio de Janeiro, in

order to fight hookworm and malaria. All are under the direction of a sanitary inspector, who in his turn is subordinate to the head inspector. Once more we are obliged to call attention to the fact that the director of public health has no authority over this service.

Absence of Yellow Fever

Since the last letter, no new case of yellow fever has been reported throughout Brazil.

Reorganization of the Public Health Department

The commission appointed to elaborate the sanitary code has given its opinion in favor of creating the ministry of health. If the government does not find it convenient to pass such a bill at once, it proposes to establish the federal department of public health, consisting of four divisions: public health service of the capital, maritime and fluvial sanitary defense division, rural prophylaxis division, and public assistance and child welfare division. The president of the department, as well as the heads of the four divisions, will be appointed by the president of the republic, chosen among the prominent members of the medical profession. The commission suggested the organization of an advisory board consisting of the president of the department, the chiefs of the different divisions, the professor of hygiene in the medical school, the president of the National Academy of Medicine, the director of the medical school, and the professor of hygiene and sanitation in the school of engineers.

South American Trypanosomiasis

Carlos Chagas read an interesting paper in the National Academy of Medicine, calling attention to some new developments pertaining to the cardiac affection of the disease. A great number of cardiograms were exhibited. Henrique Aragão read an important paper on the same subject in the Sociedade de Medicina e Cirurgia. Aragão is of the opinion that many cases of other infectious diseases have been registered under that name. He called attention to the fact that the cases of Chagas disease with nervous symptoms, endemic goiter and idiocy do not differ greatly from similar ones discovered in other parts of the world. He proposed to add the name of Oswaldo Cruz to that of Chagas, giving it the joint name Cruz-Chagas, as he considers Oswaldo Cruz the discoverer of *Trypanosoma cruzi*. He admits the possibility that a filtrable virus is the cause of endemic goiter and idiocy. Another important item mentioned is that in many regions of southern Brazil and of the Argentine Republic infected triatomas (the transmitters of the disease) have been found in large quantities without one case of the disease having been reported. He does not consider the infection as an endemic of sufficient importance to be combated. *Trypanosoma cruzi* has not been found in more than forty cases within the last ten years.

Vasconcellos stated at the next meeting of the society that Clementino Fraga and Gonçalo Muniz in Bahia, Carini in São Paulo, Kraus, Maggio and Rosenbusch in Buenos Aires had observed that in many regions of Brazil and in Argentina, where infected triatomas were found, no case of Chagas disease has been observed. He called attention to the fact that since 1909, when the first case was verified, up to date, only twenty-nine cases with *Trypanosoma cruzi* in peripheral blood had been declared. Although Chagas affirms that *Trypanosoma* causes anemia, Ezequiel Dias, of the Oswaldo Cruz Institute, found that male patients with Chagas disease have 5,725,000 erythrocytes, females 4,925,000, and children 5,027,000 in cubic millimeter.

MEXICO LETTER

Mexico, Sept. 28, 1919.

Legislative Matters

There will soon come up in congress for action the bill for the enforcement of Article 4 of the constitution, relative to the practice of professions. This bill requires, as expected, that in order to practice law, medicine, obstetrics or pharmacy in Mexico it is necessary to possess a degree granted after passing an examination in certain studies either at the National University or the universities of the different states. Foreign degrees will have to be submitted for registration when reciprocity has been established with the country in which they were obtained, while, so far as other countries are concerned, it will be necessary for the applicant to submit to an examination. Persons who do not comply with these requisites will be punished according to the provisions of the criminal code, and finally no person will be authorized to practice his profession unless he agrees to observe and make others observe the provisions of the constitution of 1917. There are some who criticize this new bill; but despite its defects, it should be approved as soon as possible to stop the many abuses of quacks (foreigners in the majority) who find their victims chiefly among the lower classes of the population and who enrich themselves through their brazen system of advertising and the boldness with which they practice medicine when they hardly know its most elementary principles.

Since the year 1857, when the constitution of the republic was adopted, it has been impossible to obtain the enactment of a law regulating the exercise of the different professions, and as a consequence the whole country, and especially the city of Mexico, has been a paradise for quacks and especially medical quacks. As an instance we may mention the case of an individual from Central America who came sometime ago to this country, applied for examination at the school of medicine, and failed to pass, but established his office shortly afterward in one of the most central locations. Occasional instances exist in which regular physicians are also practicing quackery with good financial results; but it does not seem so easy to reach these cases through legislation.

Horse Meat and Donkey Meat

Because of the scarcity and the poor quality of the beef now on sale or through eagerness to make money, some people have been devoting themselves surreptitiously to the slaughter of donkeys, mules and horses. As some of these people have been caught and punished, they intend to ask the board of public health that they be allowed to open a slaughterhouse exclusively for horses. The flesh of these animals is not bad, and during hard times we have eaten it here with full knowledge of its origin, and it is known that there is in Havana a society of horsemeat eaters. I do not know anything about the quality of donkey meat.

New Medical Journal

The central commission for the study of tabardillo (typhus fever), which was created by a resolution of the medical congress held here to discuss this disease, has begun to publish a bulletin in which appear the most interesting articles on this disease written abroad as well as observations by physicians of this country. This publication is distributed free of charge and can be obtained by writing to the editor, Dr. José Terrés, 5/a. calle de Donceles, 115, Mexico.

Personal

Dr. Gregorio Mendizábal has requested to be excused indefinitely from attending the sessions of the Academy of Medicine, of which he has been a member twenty-five years. This society, in view of the high character of the applicant, decided to make him an honorary member. The same physician will celebrate, December next, the fiftieth anniversary of his entering the profession; and on that occasion his numerous friends, pupils and sympathizers intend to show him in some way the high appreciation they have for his services.——Dr. Rafael Raygadas Vértis, the surgeon, has returned from Bern, Switzerland, where he went to represent the Mexican Red Cross.

LONDON LETTER

London, Sept. 18, 1919.

Hydrogen Arsenid Poisoning in Submarines

In June, 1916, an outbreak of hydrogen arsenid poisoning in two submarines was observed. Ratings in other submarines before and since have been sometimes affected with mild symptoms, which in view of the proof furnished in these cases may well have been due to traces of this gas in the atmosphere of the boats. The first suspicion of this poisoning being present was due to an examination of the blood of three men who were sent to the laboratory of the Naval Hospital, Chatham, for evidence of carbon monoxid poisoning. They were jaundiced, and this suggested a blood count, which revealed profound anemia. A few days later, Haldane recovered hydrogen arsenid from the battery gases of the boat in question. The two submarines mentioned above did voyages of from four to eight days' duration, and were submerged an average of seventeen hours a day. In the first voyage of each boat the symptoms were not so marked, and the onset was generally delayed until the third or fourth day; and on returning to their base the crews were able to carry on duty or proceed on leave. During the second trip the

symptoms were more pronounced, and started usually on the first or second day out. The severity of the illness forced one boat to return at the end of four days. In an experimental trip of one boat, the onset of discomfort occurred in four hours; vomiting started in fourteen hours, and the boat broke surface at the eighteenth hour after diving. Twenty men out of the twenty-six on board vomited within twenty minutes of opening up the boat. The men themselves attributed their symptoms to the prevalent bad weather, in spite of the fact that many had never been seasick in their lives, or else to an evil smelling oil fuel used in all the boats. That the condition was hydrogen arsenid poisoning is proved by the symptoms not fitting in with any other condition, and by the recovery of arsenic from the urine and hair of the victims. The source of the hydrogen arsenid was at first believed to be in the sulphuric acid used in the batteries, which always contains traces of arsenic; but if so, it was peculiar that other boats had been using acid with a higher arsenic content than that supplied to the boats in question and yet had had no unpleasant experiences. The origin was ultimately traced to an alloy in the battery grids of the affected boats which contained more arsenic than that used in other submarines. The hydrogen arsenid also was found to appear in greater amounts as the batteries got older.

The two symptoms most complained of were vomiting and dyspnea. Vomiting was the most constant and troublesome symptom. Once it had started it was continuous throughout the trip. In half the cases it was accompanied by burning and griping abdominal pain. Dyspnea on exertion was noticed in twenty-four of the thirty cases. It was probably due to destruction of and impairment of the oxygen-carrying power of the red corpuscles, aided perhaps by a toxic action on the heart muscles. There was no evidence of any lung damage. Constipation was rather more often complained of than diarrhea. The color of the urine varied from brown to blood red. This was due in most cases to hemoglobinuria, methemoglobinuria, or even to whole blood. In a few of the milder cases it may have been caused by bile pigments only. Albuminuria, except in three cases, was always present after admission. It was rarely more than a trace. Casts were found on only one or two occasions. Headache was fairly constant, and in a few men it was the chief trouble, together with insomnia. Jaundice was a constant sign. All the men except four showed mild neuritic symptoms. The symptoms did not manifest themselves till four days after returning from the voyage, but took from two to three weeks to pass off. They consisted for the most part in tingling and "pins and needles" sensations in the hands and feet. The legs were prone "to go to sleep," and a few men suffered from cramps. Among various individual symptoms there were two of interest as showing the affinity of arsenic for any mucous membrane. Two men had scalding and frequent micturition, and one suffered from an irritative conjunctivitis. The final proof that arsenic was the cause of the illness was furnished by the fact that it was found in the urine, hair and nails.

Graduate Medical Study

The Fellowship of Medicine has undertaken to carry on its work of graduate teaching in London. Last winter a series of demonstrations and lectures were given and were so widely utilized by American, French and other physicians that a regular weekly bulletin of the hospital facilities available was published. The work is now being reorganized for the coming winter. Its value as a means of encouraging international friendship has proved great. The results have exceeded the expectations then expressed. In the coming session a great expansion of the scope of the work is anticipated. The series of special lectures given under the auspices of the Fellowship at the Royal Society of Medicine began again, September 15. The following is the program so far as it has been drawn up: Mr. W. H. Trethowan, "Feet: Mechanical Disabilities"; Mr. L. B. Rawling, "Surgery of the Skull and Brain—I"; Mr. W. H. Trethowan, "Feet: Paralytic Deformities and Disabilities"; Dr. Hutchison, "Chronic Diarrhea: Its Varieties and Treatment"; Mr. L. B. Rawling, "Surgery of the Skull and Brain—II"; Mr. W. H. McMullen, "Some Common Disorders of the Fundus Oculi"; Dr. Eric Pritchard, "The Causation and Treatment of Rickets."

Lunatics and the War

A further increase in the death rate among lunatics is announced in the fifth annual report of the Lunacy and Mental Deficiency Board of Control for 1918. In the eighty asylums under review, the death rate among males was 25.2 per cent. and among females 16.4 per cent.—an increase of 3.7 per cent. in the former and 2.4 per cent. in the latter case. This steady increase caused the board much anxiety, and it referred the matter for inquiry to three commissioners, who attribute part of the increase to the effect of war conditions, such as reduced supply of food, inadequate staffs, and some degree of overcrowding. The commissioners, however, are of opinion that war conditions alone do not account for the alarming increase of sickness, and that their disappearance will not eradicate the communicable diseases (tuberculosis, dysentery and typhoid), which have obtained so strong a hold on a number of asylums; they have drawn attention to a number of matters of asylum practice and administration which have materially added to the seriousness of the situation and call for special effort toward improvement. The commissioners make a number of suggestions which are already carried out in some asylums. A further decrease is reported in the number of notified insane persons in England and Wales, the figures on Jan. 1, 1919, being 116,703, or 9,138 fewer than twelve months previously. In the three preceding years there had been decreases of 3,278, 3,159 and 8,188, respectively, as compared with an average annual increase of 2,251 for the ten years ending Dec. 31, 1919. The relative percentages of the sexes—males 42.8, females 57.2—show a continued reduction in the proportion of males.

Biology and the Locating of Submarines

The British Association for the Advancement of Science has resumed its annual meetings, interrupted for two years by the war. The president, Sir Charles Parsons, delivered an address on Science in War and Peace. Referring to the introduction of the binaural hydrophone for locating submarines, he pointed out that when the vessel is in motion or the sea is rough the water noises from the dragging of the instrument through the water and from the waves striking the ship drown the noises from the enemy vessels, rendering the instrument useless. The assistance of eminent biologists proved invaluable at this juncture. Experiments were made with sea lions by Sir Richard Paget, who found that they have directional hearing under water up to a speed of 6 knots. Also Arthur Keith explained the construction of the hearing organs of the whale, the ear proper being a capillary tube too small to be capable of any useful function in transmitting sound to the relatively large aural organs which are deep set in the head. The whale therefore hears by means of the sound waves transmitted through the substance of the head. It was further seen that the organs of hearing in the whale to some degree resemble the hydrophone. The course now became clear. Hollow towing bodies in the form of fish or porpoises were made of celluloid, varnished canvas, or even thin metal, and the hydrophone fixed in the center of the head. The body is filled with water, and the cable towing the "fish" contains the insulated leads to the observer on board the vessel. When towed some distance behind the chasing ships, disturbing noises are small and enemy noise can be heard up to speeds of 14 knots and at considerable distances.

Commissions for Medical Women in the Army

The grievance of medical women who during the war did medical work in the army but were not given commissions has already been reported. A joint deputation of the Women's Medical Federation and the British Medical Association has laid before the undersecretary for war the case for giving medical women the same status and commissioned rank as given to medical men doing similar work. The deputation enumerated certain disadvantages under which the medical women worked, such as delay in pay and absence of billeting accommodation. The War Office replied that these were matters of local administration and adjustment and were not dependent on absence of commissioned rank. The complaint that the want of commissioned rank impaired the women's professional status and put them at a disadvantage in meeting commissioned medical officers was not considered valid. The fact that they belonged to the medical profession assured them the position to which they were entitled. As regards increased pay and promotion, it was held that if medical women were to enjoy the advantages from which they were excluded, they must be not only willing but also able to perform the duties of commissioned medical officers. The deputation contended that there were no such duties which could not be equally performed by commissioned women, but the medical authorities of the War Office were unanimously of opinion that there were many essential duties which could not be performed by medical women. No doubt certain duties performed by medical officers could equally well be undertaken by medical women, such as med-

ical and surgical duties in hospitals, work connected with anesthetics and the roentgen ray, and the charge of laboratories. But the medical officers who perform these duties have had to undertake general service obligations and have been liable at all times for duty anywhere. To provide that commissioned medical women be engaged only on duties of which they are capable, it would be necessary to provide a special contract for special duties, which would result in immobilizing personnel and would necessitate an increase in establishments. The success of the medical organization in the war has been due in great measure to its mobility. Not only medical units but personnel had to be moved at short notice from lines of communication to battle areas, and even from one theater of war to another. During the last two years it was only thus that wastage could be met and reinforcements provided. Frequently whole hospital staffs were hurried up to front areas to meet sudden casualties and to make good the loss of whole casualty clearing hospitals or field ambulances. If the medical services had been immobilized by granting commissions for special units or areas, a serious situation would have arisen. The authorities held that there were insuperable difficulties in employing medical women in charge of regiments or other units or for duty in field ambulances. The provision of suitable accommodation would be impossible. Women would be out of place in the continual and intimate contact into which a medical officer is brought with a soldier. The command of medical field units involved leadership and discipline, and at times great strain and hardship to which women would be equal only in rare cases. They could not undertake the important duties of sanitation, which necessitate frequent visit to trenches and billets. A medical woman with no companions of her own sex could not be called on to live the life of the trenches. Medical women could not carry out venereal inspections or lecture troops on the prevention of venereal diseases. At the same time the War Office expressed deep appreciation for the valuable services rendered by medical women during a lengthened period of stress and anxiety. They filled a real need, and their untiring devotion earned the gratitude of all ranks.

The joint committee of the Women's Medical Federation and the British Medical Association made the following rejoinder: The reply that belonging to the medical profession assures women the position to which they are entitled is not valid. The medical woman has no status when she joins, and however long she serves, no right of seniority. Whatever her position in civilian service, whatever her length of service in the army, she is junior to and takes orders from any commissioned officer. As to inability to perform certain duties performed by men, each woman of the deputation was questioned, and they unanimously replied that medical women were able and willing to perform, if necessary, all the duties required of men; but they agreed that there were duties that it was desirable to have performed by men if available. Further, it is argued that the War Office asked women to do work previously performed by men who held commissions. This they have done and therefore they should have been given the commissions that would have been given men for these duties. Commissions have been given to medical men who by reason of physical disability or age were not fit for full service.

Marriages

William J. Egan to Miss Viola Forster, both of Milwaukee, at Shorewood, Milwaukee, September 25.

Harry Arthur Miller, Rochester, Minn., to Miss Olga Clara Grabow of Minneapolis, September 27.

Morton Patrick Morse, LeRoy, Minn., to Miss Lydia Oakland of Northfield, Minn., September 6.

Everett Herbert Pea, Vincennes, Ind., to Miss Cicelia Place of Grand Rapids, Mich., August 14.

Henry Morris Schiff to Miss Helen Rosamund Levy, both of New York City, September 21.

John B. Wickensimer, Steger, Ill., to Miss Gertrude Marie Gormley of Chicago, September 20.

John Christopher Graban to Miss Laura Louise Knoche, both of Buffalo, October 8.

Franklyn Pierre Davis to Miss Athie Eliza Sale, both of Enid, Okla., September 25.

Deaths

Charles Knickerbocker Winne, Albany, N. Y.; Jefferson Medical College, 1859; aged 81; colonel, M. C., U. S. Army (retired), who entered the Army as assistant surgeon in 1861, and was retired as lieutenant-colonel and deputy surgeon-general, June 30, 1902, by operation of law, and was made colonel, retired, April 23, 1904, and who during the Civil War was brevetted captain, major and lieutenant-colonel for bravery; died at his home, September 24.

Jacob Dennis Arnold, San Francisco; Washington University, Baltimore, 1876; aged 63; a specialist in diseases of the eye, ear, nose and throat; lecturer on throat and ear diseases in the College of Physicians and Surgeons, Baltimore, in 1884 and 1885; president and professor of diseases of the throat and ear in the San Francisco Polyclinic from 1887 to 1889; died at his home in San Francisco, September 26, from carcinoma of the pancreas.

John Randall Hooper, Baltimore; University of Maryland, Baltimore, 1866; aged 78; organizer and president of the Howard Bank, Baltimore, and later cashier and a director of the Commonwealth Bank; an astronomer of international reputation; who established and headed the astronomical section of the Maryland Academy of Sciences; died at the home of his daughter in Round Bay, Md., September 19.

Walter Morrison Byers, Mohawk, Ind.; Physio-Medical College of Indiana, Indianapolis, 1908; aged 36; a member of the Indiana State Medical Association; while driving his automobile over a grade crossing, near Mohawk, September 20, was struck by a Big Four train, and sustained a fracture of the skull and other injuries from which he died a short time later in the Deaconess Hospital, Indianapolis.

Harry Andrew Sullivan ● Rockford, Ill.; Marquette University, Milwaukee, 1913; aged 31; who went overseas as first lieutenant, M. C., U. S. Army, with Surgical Unit No. 1, saw service in the Verdun sector, and was honorably discharged, July 8, 1919; formerly a well known pitcher of the St. Louis National League; died at his home, September 22, from pneumonia.

Theodrick C. Boulware ● Butler, Mo.; Missouri Medical College St. Louis, 1859; aged 78; a Confederate veteran; for half a century a practitioner of Butler, and for thirty years local surgeon for the Missouri Pacific Railroad; one of the incorporators, directors and for several years vice president of the Missouri State Bank; died at his home, September 6.

Dabney Miner, Cleveland, Tenn.; Vanderbilt University, Nashville, Tenn., 1910; aged 32; who served for ten months in the Medical Corps of the Army as lieutenant with Base Hospital No. 54, overseas, and was honorably discharged, June 2, 1919; was found dead in his office, September 22. It is believed his death was due to an overdose of medicine.

William Henry Campbell, Pueblo, Colo.; Rush Medical College, 1897; aged 51; a member of the Colorado State Medical Society; formerly health officer of Pueblo, and president of the Pueblo County Medical Society; coroner of Pueblo County; died at St. Mary's Hospital, Pueblo, September 18, five days after an operation for appendicitis.

Auld Rose Girard, West Columbia, W. Va.; College of Physicians and Surgeons, Baltimore, 1883; aged 55; who entered the Army at the entrance of the United States into war, and was honorably discharged as lieutenant, M. R. C., Dec. 12, 1918, on account of physical disability; died at his home, September 23, from diabetes.

Robert Agodius Kreut ● Chicago; Northwestern University Medical School, Chicago, 1903; aged 29; assistant professor of pediatrics in his alma mater, and attending pediatrician to Wesley Memorial Hospital, Chicago; died in that institution, October 4, from septic pneumonia following an abscess of the nose.

Curtis Austin, Bagdad, Ky.; Louisville (Ky.) Medical College, 1883; aged 59; a member of the Kentucky State Medical Association; formerly a member of the state board of health; local surgeon of the Louisville and Nashville system; died at his home, August 15, from acute gastritis.

James H. Bristow, Portland, Ore.; Willamette University, Salem, Ore., 1895; aged 51; a member of the Oregon State Medical Association; who was taken ill in the operating room of Sellwood Hospital, Portland, September 1; died in that institution, September 11.

● Indicates "Fellow" of the American Medical Association.

Thomas A. Kurr, Fredericksburg, Pa.; Baltimore Medical College, 1902; aged 42; a member of the Medical Society of the State of Pennsylvania, and a specialist in pediatrics; died in the Good Samaritan Hospital, Lebanon, Pa., September 20, from heart disease.

Adrian Reginald Karreman, Chicago; University of Michigan, Ann Arbor, 1888; Rush Medical College, 1889; University of Illinois, Chicago, 1890; aged 51; a member of the Illinois State Medical Society; was murdered at his home in Chicago, September 29.

Smith H. Hess, Sioux City, Iowa; Rush Medical College, 1865; aged 75; for many years a wholesale druggist of Sioux City; died in the Presbyterian Hospital, Chicago, September 13, from embolism, three days after prostatectomy.

William Alexander Sympson, Glasgow Junction, Ky.; University of Tennessee, Nashville, 1892; aged 53; a member of the Kentucky State Medical Association; died at his home, September 4, from chronic interstitial nephritis.

Jacob G. Streets, Bridgeton, N. J.; Hahnemann Medical College, Philadelphia, 1866; aged 74; for many years a member of the local board of education; died at his home, September 17, from cerebral hemorrhage.

Louis Frederick Paetta, Washington, D. C.; College of Physicians and Surgeons in the City of New York, 1895; aged 51; died in the Emergency Hospital, Washington, D. C., August 9, from angina pectoris.

Orville McLeod Smith, Palmyra, Va. (license, nongraduate, Virginia, 1890); aged 51; a member of the Medical Society of Virginia; died at his home, September 16, from chronic disease of the stomach.

Hiram T. Chapin, Pittsboro, N. C.; Louisville (Ky.) Medical College, 1886; aged 61; a member of the Medical Society of the State of North Carolina; died at his home, August 31, from cerebral hemorrhage.

William Clayton Pendergrass, Clovis, Calif.; Vanderbilt University, Nashville, Tenn., 1899; aged 55; a member of the Clovis City Council; died at his home, September 22, from cerebral hemorrhage.

James Wilson Cormany, Mount Carroll, Ill.; Miami Medical College, 1873; aged 70; also a dentist; at one time mayor of Mount Carroll; died in Los Angeles, September 10, from cerebral hemorrhage.

J. D. R. Williams, Cardinal, Ont.; University of Victoria College, Cobourg, Ont., 1856; aged 86; at one time acting editor of the Toronto *Globe*; died at his home, August 2, from senile debility.

Eli Hollingshead, Seattle; Eclectic Medical Institute, Cincinnati, 1872; aged 86; a pioneer practitioner of Waterville, Wash.; died at the home of his daughter in Seattle, September 11.

Charles W. Thompson, Clearmont, Wyo.; Ohio Medical University, Columbus, 1896; aged 62; died at the home of his daughter in Cambridge, Ohio, September 17, from chronic nephritis.

Axel F. Blomburgh, Minneapolis; Minneapolis College of Physicians and Surgeons, 1897; aged 52; died at his home, September 7, from carcinoma of the throat.

Matthew L. Bennett ✪ Watkins, N. Y.; Geneva (N. Y.) Medical College, 1866; aged 73; a specialist in surgery; died at his home, August 6, from angina pectoris.

Wilton R. Stuart, White Post, Va.; College of Physicians and Surgeons, Baltimore, 1880; aged 64; died at his home, July 24, from cerebral hemorrhage.

George S. Brigham, St. Cloud, Minn.; University of Vermont, Burlington, 1870; aged 74; died at his home, August 30, from infection following influenza.

Morris W. Fellman, Philadelphia; University of Pennsylvania, Philadelphia, 1894; aged 45; died at his home, September 22, from heart disease.

Andrew Jackson Dorn, Redlands, Calif.; Eclectic Medical Institute, Cincinnati, 1885; aged 66; died at his home, September 2, from asthma.

Andrew W. Moore, Fayette, Mo.; Washington University, St. Louis, 1882; aged 74; died at his home, August 18, from chronic nephritis.

Mahlon B. Dill ✪ Perkasie, Pa.; Jefferson Medical College, 1881; aged 67; died at his home, September 25, from cerebral hemorrhage.

J. N. Murdock, Leicester, Mass.; aged 92; who went into business two years after graduation; died at his home, June 12.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

MORE MISBRANDED NOSTRUMS

"Rubino Healing Springs Lithia Water."—The Rubino Healing Springs Co., Hot Springs, Va., shipped, in June, 1917, a quantity of "Rubino Healing Springs Lithia Water" into Connecticut. This was another of the so-called "lithia waters" which contained practically no lithium. The product was declared misbranded, first because of the false and misleading statements that it was a lithia water when, in fact, it "did not contain a sufficient quantity of lithium to entitle it to be called lithia water" and, second, because of the false and fraudulent claim that it was effective as a treatment for rheumatism and gout. The court entered a judgment of condemnation and forfeiture and ordered that the product should be released to the claimant on payment of the costs and the execution of a bond.—[*Notice of Judgment No. 6005; issued June 17, 1918.*]

"Kuhn's Rheumatic Remedy."—A quantity of this preparation was shipped in November, 1916, by the Kuhn Remedy Company of Chicago. Samples analyzed by the federal

chemists showed the product to be a water-alcohol solution containing essentially potassium iodid, iodin and sugar with indications of small amounts of plant material and aromatics. These findings essentially confirmed those of the state chemists of New Hampshire and North Dakota who reported on the stuff in 1914 and 1916, respectively. The preparation was declared misbranded in that it was falsely and fraudulently sold under the claim that it was a cure for all forms of rheumatism, neuralgia, blood diseases, lumbago, etc., "when in truth and in fact it was not." It was also falsely and fraudently represented as a preventive of organic heart troubles resulting from rheumatism. In June, 1918, the company pleaded guilty and was fined $200 and costs.—[*Notice of Judgment No. 6392; issued Sept. 8, 1919.*]

"Lower's Pure Blood Remedy."—Robert H. Lower of Hot Springs, Ark., shipped, in October, 1916, a quantity of "Lower's Hot Springs Pure Blood Remedy." This was analyzed in the Bureau of Chemistry and found to be a weak alcoholic solution containing sugars, small amounts of chlorids, iodids and sulphates (probably as the sodium salts) and vegetable extractives among which were podophyllum and an atropin-bearing drug. The stuff was falsely and fraudulently represented as a treatment or remedy for syphilis, paralysis, catarrh, eczema, malaria, chanchroids, sciatica, all kinds of rheumatism and all blood and skin diseases. In June, 1918, Lower pleaded guilty and was fined $10. —[*Notice of Judgment No. 6353; issued Sept. 8, 1919.*]

"Schade's Specific and Female Regulator."—In January, 1917, Erna D. Schade, who did business as Herman Schade, Chicago, shipped in interstate commerce, a quantity of "Schade's Specific and Female Regulator." In January, 1918,

information in the case was filed against Schade by the federal authorities on the charge that the product was misbranded. The government chemists reported that the preparation was a water-alcohol solution containing chiefly sugar, aromatics, essential oils, licorice, and bitter plant extractives. It contained 12.84 per cent. of alcohol by volume, but the label declared the presence of 45 per cent. of alcohol. The government authorities declared that the claims made for the preparation, to the effect that it was a remedy for retarded, suppressed, irregular, painful and imperfect menstruation, miscarriage, leucorrhea, "palpitation of the heart," ulceration of the womb, sore breasts, etc., and the further claim that it was a regulator of the "monthly courses," as well as a remedy for hysteria and falling of the womb, were false and fraudulent. In June, 1918, Erna D. Schade pleaded guilty and was fined $100 costs.—[*Notice of Judgment No. 6422; issued Aug. 20, 1919.*]

Correspondence

"PROTEOGENS": DR. BROEMAN REPORTS RESULTS NIL

To the Editor:—In the September 27 issue of THE JOURNAL my name was mentioned in connection with the Merrell Chemical Company's "Proteogens" in the treatment of syphilis. The Merrell Chemical Company promised not to use my name at any time in connection with their "Proteogens" injection and they know that the use of my name has been distinctly against my wishes. I feel that in justice to myself, as well as the public, I should report the result of my experiments with their "Proteogens" in private practice.

In explanation I might say that I began the use of their "Proteogens" in April, 1918, and I feel that I now have enough data to give a complete report. I might say that all my results have been practically nil; particularly is this true in my cases of syphilis which all had a four plus Wassermann reaction when I discontinued using this form of treatment.

Very truly yours,

C. J. BROEMAN, M.D., Cincinnati.

[COMMENT.—In connection with the above letter read page 1000 of THE JOURNAL, two weeks ago, September 27.—ED.]

"THE INHERITANCE OF ACQUIRED CHARACTERS"

To the Editor:—Although you have distinguished company in complaining of the dismal rigidity of the mendelian law, the authors quoted in your editorial of September 13 on this subject are not at all convincing. Their arguments appear to me to be puerile in more ways than one. Fischer says that the children of older parents are apt to be greater intellectually than the children of young parents, therefore they have inherited acquired intellectual characteristics. Was there ever a more typical post hoc ergo propter hoc argument? I doubt whether it would be possible to collect reliable statistics bearing on the question; but, granting the truth of the original statement, what ground is there for Fischer's conclusion? It is analogous to, and just as fallacious as, the old belief in the inheritance of tuberculosis. In both instances the result is due to environment. Of course the children of older and wiser parents are apt to have a broader and less impeding environment than the children of young and overconscientious couples who are lacking in poise and experience and who frequently suppress or warp the child ego. On the other hand, we have the sad examples of the children of fussy and unpractical old intellectuals in comparison with the children of cheerful, upright, easy-going young people.

Furthermore, I have never seen any grounds for discouragement in the comparative slowness of evolutionary processes as applied to man. Such an attitude seems to be due to a lack of appreciation of the facts. Development through heredity has no direct relation to the development of the individual: it is the slow conservative method by which minute changes are tried out over long periods of time. It will not yield in the least to the hurry and impatience of modern America.

The brilliancy of the concept of selective evolution has so dazzled the minds of two generations that the relative importance of environment has been overlooked. As a result, heredity has been made the scapegoat for many of the ills actually due to defects in the present social organization. Here again tuberculosis is one of the most striking examples. The individual man is endowed by heredity with possibilities of development so far beyond actual accomplishment that it is as futile to ask for more as for the small boy already glutted with food to cry for more cake. We can change our environment—in the broad sense of the word—as completely as we can change our clothes. Read "Sartor Resartus" once more and be comforted.

LOUIS C. AGER, M.D., Brooklyn.

POISONING FROM EATING CANNED RHUBARB STEMS

To the Editor:—Anent your comment on "Death from Rhubarb Leaves Due to Oxalic Acid Poisoning (THE JOURNAL, Sept. 20, 1919, p. 928), I wish to place on record ten cases of poisoning from eating rhubarb stems. These were of the pack of 1917—whether early or late canning could not be ascertained. In one family of ten, nine had eaten of the rhubarb. The ages ranged from 2 years to 86; all the patients were violently ill; two, who had had two helpings, had convulsions. The symptoms in all came on within twenty minutes of each other and about two hours after eating. Free use was made of the stomach pump, followed by lime water, and also castor oil. All the patients recovered. This point was evident to me: that the ones who were first treated with use of the stomach pump recovered most promptly. The mother, who had not partaken of the rhubarb, had no symptoms. One other patient in another family two weeks later had similar symptoms from eating rhubarb and promptly recovered. Samples of this rhubarb were sent to our state laboratory. The report was that the samples submitted contained approximately the normal amount of oxalic derivatives.

HARRY W. BENSON, M.D., Oakland, Neb.

STERILIZE THE THERMOMETER

To the Editor:—In view of the possible return of influenza, may I call attention to a matter of hygiene which all consider of importance: I refer particularly to the necessity of thorough sterilization of the fever thermometer.

It is unfortunately still the custom in many hospitals to sterilize thermometers by standing them upright in a solution of mercuric chlorid, phenol (carbolic acid) or alcohol, a solution which is often not deep enough to cover more than half the length of the tube. Before use, each thermometer is hastily wiped off in one motion with a piece of gauze or cotton, starting at the top, the unclean end.

While our knowledge of influenza is what it is, it seems important that we should work and plan on the basis of things known. We know that the pathologic process in the lungs is partly due to gram-positive organisms variously reported staphylococci, streptococci and pneumococci. The variety of these secondary organisms determines the type of lesion.

At Camp Johnston I found pneumococci in the sputum and in the lungs at necropsy of influenzal pneumonia patients, pneumococci which were usually of Type IV, rarely of Type III, and hardly ever of Type I or Type II. Occasionally staphylococci took the place of pneumococci. The influenza bacillus was isolated in a large percentage of the cases.

What impressed one in following the clinical course of the disease was the frequent sudden change for worse in patients who had been admitted mildly ill a few days previously.

Were not some terminal infections contracted in hospitals? It seems possible. Improper sterilization of thermometers may have been one mode of infection.

We need a Semmelweis in influenza to teach us that the nose and mouth of influenza patients should be treated with somewhat the same respect as the genital tract at the puerperium, for it seems improbable that all the infections with gram-positive organisms in influenza come from organisms normally established in each patient's mouth, in view of the fact that the gram-positive organisms that predominate differ in different hospitals. One is inclined to believe that these secondary infections came from other patients. It would seem well, then, to guard the nose and mouth of influenza patients.

Perhaps it is unfair to criticize hospital methods of sterilizing thermometers when most physicians still clean their pocket thermometers by immersion under the tap or by dipping them into a glass of water. Thermometers to be cleaned ought to be laid flat in an antiseptic solution.

RICHARD E. STIFEL, M.D., Cleveland.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SANITATION OF SWIMMING POOLS

To the Editor:—Leading opinions are urgently sought: 1. In regard to the comparative germicidal efficiency of liquid chlorin and the ultraviolet ray, as found in the actual operation of these methods on swimming pool water.

2. Will the presence in the water of 1 part of chlorin (available) to 1,000,000 of water cause smarting of the eyes, offensive smell, etc.?

3. Is the fact that the chlorin acts on the bacteria in the water all the time, and that the violet ray acts only as the water passes the mercury lamp (and not in the pool), an important or a negligible factor?

4. What is the highest number of bacteria (nonpathogenic) that may be found per cubic centimeter and the water still considered clean and safe for swimmers?

E. P. S.

ANSWER.—1. It is not possible to make a precise statement regarding comparative germicidal efficiency of liquid chlorin and the ultraviolet ray, as the conditions under which these agents are effective vary widely in actual practice. As well known, a turbid water is not suitable for the latter mode of treatment. The efficiency of liquid chlorin as a germicide is naturally determined by the strength employed as well as by the amount of organic matter in the water.

2. It is possible that one part of available chlorin to 1,000,000 of water may cause smarting of the eyes in some persons; but this is a point very difficult to determine, since the same water without the chlorin may cause smarting under certain conditions. It seems to be true that in some individuals, at least, water containing the stated amount of chlorin causes no smarting of the eyes when applied in the ordinary way. Even a small amount of chlorin may impart an odor to water which is unpleasant to some people. Suggestion and imagination, however, play a large part in the annoyance experienced from this source.

3. These points are important under some conditions, and negligible under others.

4. So far as we know, no standard for the bacterial content of swimming pool water has ever been adopted.

In general, the treatment of swimming pool water does not seem to be practiced in a uniform manner in different communities, and the results of experimental work are not unambiguous. There is no doubt that it has proved difficult to maintain the delicate balance between disagreeble odors and bacterial purity in some instances in which chlorin or chlorin compounds are used. Careful supervision of chlorin application is essential. Manheimer (*Pub. Health Rep.* **33**:267 [March 1] 1918) states that ultraviolet light in actual practice has proved ineffective.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 11-12. Sec. Regular Board, Dr. T. J. Stout, Brinkley. Sec. Eclectic Board, Dr. Claude E. Laws, 903½ Garrison Ave., Fort Smith.

CALIFORNIA: Sacramento, Oct. 20-23, Sec., Dr. Chas. B. Pinkham, Butler Bldg., San Francisco.

CONNECTICUT: New Haven, Nov. 11-12. Sec. Regular Board, Dr. Charles A. Tuttle, 196 York St., New Haven. Sec. Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Eclectic Board, Dr. James E. Hair, 730 State St., Bridgeport.

DISTRICT OF COLUMBIA: Washington, Oct. 14-16. Sec., Dr. Edgar P. Copeland, The Rochingham, Washington.

GEORGIA: Atlanta, Oct. 14-15. Sec., Dr. C. T. Nolan, Marietta.

KANSAS: Topeka, Oct. 14. Sec., Dr. H. A. Dykes, Lebanon.

LOUISIANA: New Orleans, Nov. 4. Sec. Homeopathic Board, Dr. F. H. Hardenstein, 702 Maclean Bldg., New Orleans.

MAINE: Portland, Nov. 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MICHIGAN: Lansing, Oct. 14-16. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

NEBRASKA: Lincoln, Nov. 12-14. Sec., Dr. H. J. Lehnhoff, 514 First Nat'l Bank Bldg., Lincoln.

NEVADA: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 21-22. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, Oct. 13-14. Sec., Dr. R. E. McBride, Las Cruces.

SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Galveston, Nov. 18-20. Sec., Dr. M. F. Bettencourt, Mart.

WEST VIRGINIA: Charleston, Oct. 14. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Massachusetts May Examination

Dr. Walter P. Bowers, secretary of the Massachusetts State Board of Registration in Medicine, reports the oral, written and practical examination held at Boston, May 13-15, 1919. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 29 candidates examined, 23 passed, and 6, including 2 osteopaths, failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Pacific Medical College	(1914)	81.1
Chicago Hospital College of Medicine	(1918)	75
Rush Medical College	(1901)	76.2
Medical School of Maine	(1910)	75
Baltimore Medical College	(1905)	75
Boston University	(1919)	76
College of Physicians and Surgeons, Boston	(1915)	75
Harvard University (1915) 82.3, (1916) 76.7, 78.7, 83.		
Tufts College Medical School (1917) 78.9, (1918) 79.1, (1919) 77.5, 77.5		76.7
Columbia University	(1898) 75, (1914)	81
Long Island College Hospital	(1908)	75
Syracuse University	(1916)	85.5
Woman's Medical College of Pennsylvania	(1912)	76.9
University of Vermont	(1903) 79.5, (1914)	75
FAILED		
Chicago Hospital College of Medicine	(1917)	70.8
College of Physicians and Surgeons, Boston	(1916)	71.5
Middlesex College of Medicine and Surgery	(1918)	72.7
Laval University	(1917)	72

Ohio June Examination

Dr. H. M. Platter, secretary of the Ohio State Medical Board, reports the oral, written and practical examination held at Columbus, June 3-6, 1919. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 130 candidates examined, 128 pased and 2 failed. Twenty-five candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1918)	85.1
Atlanta Medical College	(1890)	*83.3
Northwestern University	(1902)	80.9
Southwestern Homeopathic Medical College	(1902)	76.2
Johns Hopkins University	(1918) 84.5,	85.8
Harvard University	(1919)	86.4
Eclectic Medical College, Cincinnati (1919) 75.1, 75.5, 76.6, 77.5, 79.2, 80.8, 81.2, 81.5, 82.2, 82.6, 83.2, 83.3, 83.6, 83.9, 84.2, 84.6, 85.1, 85.5, 85.7, 85.8, 86.2, 87, 89, 89.1, 89.7.		
Ohio State University College of Homeopathic Medicine (1919) 75.9, 81.3, 81.3, 82.9, 83.1, 83.2, 85.5, 85.8, 86.5.		

Ohio State University College of Medicine (1919)	81.1,	83.1, 83.9, 84.2, 84.4, 84.7, 85, 85.3, 85.6, 85.6, 85.7, 85.8, 87.4, 89.9, 90.2, 91.3.
University of Cincinnati (1919)	78,	79.5, 80.2, 81.5, 81.9, 81.9, 82.3, 82.7, 82.8, 82.8, 84.1, 84.5, 84.9, 85.6, 86, 86.6, 87.2, 87.5, 87.7, 88, 9, 89.4, 90.1.
Western Reserve University (1919)	82.8,	83, 83, 83.1, 83.6, 83.7, 84, 84.2, 84.5, 84.8, 85, 85.2, 85.3, 85.7, 85.8, 85.9, 86, 86, 86, 86.1, 86.2, 86.7, 86.7, 86.8, 86.9, 87.4, 87.4, 87.5, 87.7, 87.9, 87.9, 88.1, 88.1, 88.5, 88.9, 89.1, 89.3, 89.6, 89.6, 89.9.
University of Oklahoma (1918)		82.1
Jefferson Medical College (1882)	*80.5,	(1917) 82.3, (1918) 93.9, 84.4
University of Pittsburgh (1919)		81.3
Vanderbilt University (1918)		85.2
Western University (1904)		79.6

FAILED

Eclectic Medical College, Cincinnati (1918)	72.3
Medical College of Virginia (1918)	73

College (LICENSED THROUGH RECIPROCITY)	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1915)	Illinois
Hahnemann Medical College, Chicago	(1915)	Illinois
Jenner Medical College	(1910)	Illinois
Rush Medical College	(1917)	Illinois
University of Louisville	(1908)	Michigan
Medical School of Maine	(1894)	Maine
Johns Hopkins University	(1917, 2)	Maryland
University of Maryland	(1907)	Maryland
University of Michigan Medical School	(1917)	Michigan
St. Louis University School of Medicine	(1918)	Missouri
University Medical College of Kansas City	(1912)	Missouri
Columbia University	(1917)	New York
Cornell University	(1916)	New York
Eclectic Medical College of the City of New York	(1896)	New York
Long Island College Hospital	(1914)	New York
New York Homeopathic Medical College	(1912)	Maine
Eclectic Medical College, Cincinnati	(1917)	Kentucky
Eclectic Medical Institute, Cincinnati	(1899)	Indiana
University of Pennsylvania	(1910)	Penna.
University of Pittsburgh	(1910)	Penna.
Woman's Medical College of Pennsylvania	(1913)	Penna.
Meharry Medical College	(1903)	Alabama
Medical College of Virginia	(1913)	W. Virginia
University College of Medicine, Richmond	(1901)	Virginia

* Fifteen per cent. allowed for years of practice.

Mississippi June Examination

Dr. W. S. Leathers, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, June 24-25, 1919. The examination covered 12 subjects and included 96 questions. An average of 75 per cent. was required to pass. Of the 21 candidates examined, 18 passed and 3 failed. Twenty candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	No. Licensed
University of Alabama	(1907), (1919)	2
Bennett Medical College	(1918)	1
Tulane University	(1919)	6
Jefferson Medical College	(1919)	2
University of Tennessee	(1919)	3
University of Virginia	(1912), (1919, 3)	4

FAILED

Meharry Medical College	(1917), (1918)	2
Memphis Hospital Medical College	(1911)	1

College (LICENSED THROUGH RECIPROCITY)	Year Grad.	Reciprocity with
Medical College of Alabama	(1892)	Alabama
University of Alabama	(1909)	Alabama
Kentucky University	(1918)	Texas
Louisville and Hospital Medical College	(1908)	Oklahoma
University of Louisville	(1913)	Kentucky
Tulane University	(1902), (1915)	Louisiana
College of Physicians and Surgeons, Baltimore	(1910)	Tennessee
Mississippi Medical College	(1910)	Tennessee
New York Homeopathic Medical College and Hospital	(1889)	Penna.
Eclectic Medical Institute	(1886)	Kentucky
Memphis Hospital Medical College	(1898) Tennessee, (1904)	Louisiana
	(1910), (1913)	Tennessee
University of Tennessee	(1917, 2), (1918)	Arkansas
Vanderbilt University	(1904)	Tennessee
University of Virginia	(1915)	Virginia

Connecticut July Examination

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the written and practical examination held at New Haven, July 8-9, 1919. The examination covered 7 subjects, and included 70 questions. An average of 75 per cent. was required to pass. Of the 50 candidates examined, 41 passed and 9 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Yale University (1915) 82.6, (1917) 90.6, (1919) 84.2, 84.6, 86.4, 86.9, 88.7, 89.8, 92.1, 93.2.		
Georgetown University	(1917)	80.7, 81.9
College of Phys. and Surgs., Baltimore	(1915)	84.9
Johns Hopkins University	(1912)	84.1, (1914) 87.4
Harvard University	(1904) *71.1, (1918) 83.2, (1919) 90.6	
Tufts College Medical School (1916) 78.6, (1917) 88.3, (1919) 83.5		
Columbia University	(1919) 83.8, 84.7, 84.7, 84.8, 85.7, 86.6	92.4
Cornell University (1900) *74.7, (1916) 75.1, (1918) 87.9, (1919) 90.3		
Fordham University	(1916) 82.8, (1919)	88.7
Long Island College Hospital	(1915) 85.5, (1918) 82.6, (1919)	87.3
Jefferson Medical College	(1916) 77, (1919)	76.3
University of Nashville	(1908)	*72.3
McGill University	(1919)	75.4

FAILED

College of Phys. and Surgs., Baltimore	(1910)	37.5
University of Maryland	(1917)	73.1
Tufts College Medical School	(1919)	70.8
Fordham University	(1918)	69.3
Medical College of Ohio	(1897)	**50.5
Meharry Medical College	(1915)	68.2
Medical College of Virginia	(1917)	63.1
University of Vermont	(1915)	69.7
Milwaukee Medical College	(1903)	*62.3

* Five per cent. allowed for years of practice.
** Ten per cent. allowed for years of practice.

Dr. James E. Hair, secretary of the Connecticut Eclectic Medical Examining Board, reports that one candidate, a graduate of Kansas City College of Medicine and Surgery, in 1917, was licensed through reciprocity with Arkansas, March 11, 1919.

Indiana Reciprocity Report

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports that 9 candidates were licensed by reciprocity from May 5, 1919, to July 29, 1919. The following colleges were represented:

College (LICENSED THROUGH RECIPROCITY)	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1913)	Illinois
Hahnemann Medical College, Chicago	(1913)	Illinois
University of Illinois	(1917)	Illinois
University of Louisville	(1908)	Illinois
Columbia University	(1918)	New York
Jefferson Medical College	(1908)	Virginia
University of Pennsylvania	(1902)	Penna.
Meharry Medical College	(1913)	Tennessee
Vanderbilt University	(1909)	Kentucky

Book Notices

THE OPERATIONS OF OBSTETRICS, EMBRACING THE SURGICAL PROCEDURES AND MANAGEMENT OF THE MORE SERIOUS COMPLICATIONS. By Frederick Elmer Lenvitt, M.D., Obstetrician to the City and County Hospital, St. Paul, Minn. Cloth. Price, $6. Pp. 466, with 248 illustrations. St. Louis: C. V. Mosby Company, 1919.

The merit of this work lies in the fact that it is devoted entirely to an exclusive field of surgery which heretofore has not received sufficient attention in the college curriculum. Obstetric emergencies call for immediate action, if the patient's life is to be saved. This presupposes a cool head, and a knowledge of just what to do. There is usually no time to read up or to call a consultant. While it is true that standard textbooks on obstetrics deal with operative methods, the grouping of the subject in a separate book has the merit of emphasis in this important field of practice. The arrangement of the subject-matter is logical, and the treatment quite up to date. The illustrations, by the author himself, are adequate.

A LABORATORY OUTLINE OF EMBRYOLOGY WITH SPECIAL REFERENCE TO THE CHICK AND THE PIG. By Frank R. Lillie, Professor of Embryology, and Carl R. Moore, Instructor in Zoology, University of Chicago. Pp. 66. Price, postpaid, 30 cents. Chicago: University of Chicago Press, 1919.

This publication, which has gone through several revisions, has served for the study of embryology by medical students. The writers believe that a course in embryology for medical students can be presented more effectively by studying the development of each organ system separately than by consideration of the entire embryo at time intervals. This book gives methods of study and outlines the course in embryology, specifying the number of hours to be devoted to each portion, the entire course being intended to cover sixty hours. The outlines have been employed in the medical course at the University of Chicago during eight quarters. It is believed that they will prove useful in other institutions.

Social Medicine, Medical Economics and Miscellany

ESTIMATING THE RATE OF SYPHILITIC INFECTIONS IN THE UNITED STATES

BENJAMIN MALZBERG
Special Agent, United States Interdepartmental Social Hygiene Board
New York

No problem in public health is of greater importance than the control of syphilis. No other disease requires more insistently the organization of proper agencies to cope with it. Yet the very fundamental of a preventive campaign, an accurate knowledge of the exact prevalence of syphilis, is nowhere to be found. Prevention must be grounded on a knowledge, first, of who is diseased, and, secondly, of how many are diseased. The first is obvious, for how can isolation of the diseased person be enforced and how can follow-up work be maintained, if the very elementary knowledge of who is diseased is lacking? How can action be taken toward the formulation of a plan and organization for the prevention of the spread of disease, unless health bodies have an accurate knowledge of the size of the problem? Mere assumption or a guess as to the prevalence of syphilis is a very unsafe foundation on which to work. It is true that there are numerous estimates as to the prevalence of syphilis, not only in the United States, but also in Europe. But as to results there is very little agreement. This in itself is no indication of error, for it might very well be that the rate of syphilitic infection fluctuates widely, not only for different places, but for different periods of time as well. What is of deep concern, however, is the fact that not a single estimate of the prevalence of syphilis in the general population can stand the test of examination. The estimate is usually high or low, being dependent on the idiosyncrasies and prejudices of the writer. If he is an alarmist, who, because of long specialization, cannot see the woods because of the trees, then he alleges that every other male adult will be infected some time in his life. On the other hand, should the writer be possessed of a conservative spirit, then he will report the rate of infection as small.

For many years it has been the custom to quote and requote a limited number of authorities. Thus, Morrow in the United States, Fournier in France, and Blaschko in Germany have been the sponsors for most of the well-known estimates. We are told that from 10 per cent. to 20 per cent. of the adult population of New York City is infected with syphilis; that 15 per cent. of the Parisian population is similarly diseased; that 45 per cent. of Berlin clerks between the ages of 18 and 28 are syphilitic, or that from 40 per cent. to 60 per cent. of males will be infected some time in the course of their lives. The time certainly has come when such statistics should be either verified or discarded. If in the present state it is impossible to arrive at any estimate concerning the prevalence of syphilis, the fact should be frankly admitted. To quote continually data that are of doubtful value, to say the least, is not a hopeful augur of future success. It is well, therefore, to clear the ground for a thorough analysis of the problem. Let us desist in the future from the method of amassing a heterogeneous conglomeration of statistics from all over the world, and attempting the well-nigh hopeless task of generalizing from such results.

TABLE 1.—TOTAL CASES OF SYPHILIS AND OF GONORRHEA REPORTED IN THE CITY OF NEW YORK*

Year	Syphilis	Gonorrhea
1912	2,124	2,418
1913	10,433	6,883
1914	21,128	9,536
1915	17,235	9,709
1916	20,128	6,221
1917	20,178	8,312
1918	17,330	6,336
Total	108,836	49,427

*Weekly Bulletin, Department of Health, City of New York, May 24, 1919, p. 162.

STATISTICAL METHODS

What are the methods, then, by which accurate results may be achieved? They may all be reduced, fundamentally, to two methods of procedure: The first is the collection and tabulation of cases of syphilis, and the morbidity rate therefrom, by the state and local bureaus of vital statistics. The second is the examination of a cross-section of the population. The former is obviously the more logical method. It is suplementary to the collection of mortality statistics. From the point of view of the statistician, neither set of data would be complete without the other. It would not be fair to state that this is not well recognized by the health authorities, for a survey of health regulations throughout the country would at once show a long list of state and municipalities that require the reporting of cases of venereal disease. Yet, that the results therefrom are utterly valueless is well known and admitted by all concerned. At least, the only exception I have come across is the statement of the director of the Bureau of Venereal Disease of the North Dakota State Board of Health, to the effect that "physicians of the state are, as a rule, faithfully complying with the law in reporting cases of venereal disease to the bureau."[1] To the contrary, it is a commonplace that physicians invariably refuse to report cases of syphilis. This attitude results, first, from a failure to recognize the value of morbidity statistics and, secondly, from a desire to protect the patient from any social and moral stigma that may be attached to a venereal disease. However, whatever the motive may be in any particular case, the result is that but a very slight proportion of syphilitic cases are ever reported to the health authorities. This failure is so well known that no effort whatever is made to enforce the law in relation to the reporting of venereal diseases. In New York City an effort is being made to encourage voluntary reporting of cases by the physicians, by offering them the facilities of the health department laboratories in examining and diagnosing blood specimens. Yet despite this, the morbidity rate for syphilis for New York City for the year 1918 would be only 0.3 per cent. if the number of cases reported by the health department were to be accepted at their face value. Nothing exposes the failure to report venereal disease so much as a glance at the figures themselves. For New York City the totals are as given in Table 1.

Physicians and statisticians all know that there must be a far greater rate of infection from gonorrhea than from syphilis, yet for the period of 1912 to 1913, the ratio of syphilis to gonorrhea as reported to the New York City Health Department was, roughly, 2:1, a complete reversal of a well established fact. Of course, the health department does not pretend that its figures are truly descriptive of New York City.

TABLE 2.—TOTAL CASES OF SYPHILIS REPORTED AND RATE OF INFECTION*

City	Estimated Population July 1, 1916	Cases Reported	Rate per 1,000 Inhabitants
Cleveland	674,873	257	.381
Los Angeles	503,812	342	.679
New York	5,602,841	20,128	3.592
Pittsburgh	579,090	21	.036
Buffalo	468,558	1,788	3.816
Cincinnati	410,476	139	.387
Columbus, Ohio	214,878	5	
Rochester, N. Y.	256,417	130	.507
Dayton, Ohio	127,234	4	
Des Moines, Iowa	101,598	18	.177
Hartford, Conn.	110,900	81	.730
Oakland, Calif.	196,604	7	
Spokane, Wash.	150,323	9	.060
Toledo, Ohio	191,554	172	.898
Youngstown, Ohio	108,385	36	.340

*The Notifiable Diseases: Prevalence During 1916 in Cities of Over 100,000, Pub. Health Rep. 33: 595 (April 27) 1917.

1. Bull. North Dakota State Board of Health, April, 1919, p. 9.

The fallacy involved in reasoning from the reported cases is further demonstrated, in Table 2, in which the rates show not only that the cases reported are far from the total number of infections, but also that the accuracy of what little notification we have varies widely from city to city. Thus, we find that a method which could give us relatively exact results, if properly utilized, leads us into absurdities when cooperation between the health bodies and practicing physicians breaks down.

THE QUESTIONNAIRE

Several attempts have been made to arrive at an estimate by the use of the questionnaire method. Thus a special committee of the New York County Medical Association estimated in 1901 that there were 200,000 cases of syphilis in the city. This result was obtained by analyzing the results received from physicians who were requested to state how many syphilitic patients they had treated during the year. This method is subject to so many errors that the result ought surely to be discarded. In the first place, many of those infected will not report for treatment, trying some self-cure or patented methods instead. In the second place, syphilis has been a choice field for the quack, who would be the last individual to give facts concerning the size of his practice. Then, again, many of the reputable physicians will always fail to reply to a questionnaire. The method of correction usually pursued is to credit them with a number of cases in proportion to the total reported by the other physicians. But is it not apparent that the physicians replying are more likely to be those who specialize to some extent in this field and who will, therefore, be visited by a larger proportion of such patients? To these sources of error we may add that arising from duplication. In view of these facts, any estimate thus established must be rejected, unless associated with other very weighty evidence.

Thus, in whatever form the reporting method is used, it is seen to result in failure. It might be argued, however, that it is possible to estimate the morbidity rate for syphilis by utilizing the death rate. This follows directly from the relation between the death and morbidity rates. Thus, if the death rate is multiplied by the inverse of the lethal rate, the result will be the morbidity rate for the given disease. The difficulties in estimating the death rate are similar to those encountered in estimating the morbidity rate. The physician making out the death certificate, in other words, disguises the real cause of death by naming a secondary symptom. It is possible, however, to evaluate with some degree of accuracy the true death rate for syphilis, by correcting for secondary causes.[2] But as the lethal rate for syphilis is an absolutely unknown quantity, it is impossible to pursue the method further. And again, even though the latter could be discovered, one could not be sure as to which year a death ought to be ascribed, as it might result from an infection as old as twenty years.

EXAMINATION OF A CROSS-SECTION

There remains, then, but one other method, the examination of a sample population which must be a true cross-section and representative of every element in the population. One cannot assume, for example, that because 6.4 per cent. of the applicants for a license to peddle in New York City are syphilitic, the same is true of the total population, or that there is a high rate of infection among women in New York City because 40.8 per cent. of the inmates of Bedford Reformatory were found infected.[3] These groups are specially selected and in no way typical of the general population. The same is true of hospital populations, though they approach more nearly the general population in character. Thus, among 18,187 hospital patients coming from all social and industrial classes, and examined at random in twenty hospitals, 19.6 per cent. were found to be syphilitic.[4] But it would be futile to infer from this that the rate of infection is as high in the general population, because the former class was selected in two ways. In the first place, a hospital group differs in age distribution from the general population and, in the second place, it is undoubtedly selected indirectly through the secondary effects of syphilis, which may attack any organ of the body and cause diseases that are not at first diagnosed as syphilitic. In order to arrive at a reasonable estimate, it is essential, therefore, that a group be examined which is apparently in good health.

Such an opportunity was afforded by the National Army, which was drawn practically at random from the male population between the ages of 21 and 31, a period at which infection is most likely. Unfortunately, no Wassermann tests were given, diagnosis being based entirely on obviously pathologic symptoms at the time of examination in camp. The result is shown in the fact that among 911,840 men examined, only 4,027, or 0.44 per cent., were diagnosed as syphilitic. The ratio for all the venereal diseases was 2.25 per cent.

When the second million men in the National Army were examined, the percentage, owing to more experience and, therefore, greater skill in diagnosis, increased to 5.4 per cent. for all venereal diseases. Applying the ratio found in the first draft, this would mean that 1.06 per cent. of the second million were syphilitic. But both estimates are so far from the mark that they are valueless for all practical purposes, as it is not possible to correct for the amount of syphilis that remained undiagnosed. It is interesting to note, however (assuming that the errors in diagnosis were in proportion throughout the country), that the East South Central Division, consisting of the states of Kentucky, Tennessee, Alabama and Mississippi, showed the highest rate of infection. This was followed by the South Atlantic Division, which consists of the states of Delaware, Maryland, Virginia, West Virginia, North and South Carolina, Georgia, Florida and the District of Columbia. These two divisions showed rates of infection far higher than those for any other section of the country. The lowest rate was found in the Pacific Division, consisting of the states of Washington, Oregon and California.

No one can ever guess when again there will be such an opportunity for examining so large a proportion of the population. It is not worth while expressing vain regrets over what might have been accomplished by a thorough survey. It would be better to devise some practicable method of either securing complete notification of cases of syphilitic infection, or else finding another large cross-section of the population suitable for examination. The former is a problem in public education, the results of which will undoubtedly materialize in the future. But we must obtain some ready method for immediate use. As such, I offer the following suggestion: The policy holders and applicants for policies in the large life insurance companies are selected from the entire population of the United States, comprising elements from the poorest to the richest, the most ignorant to the most enlightened. Would it not be an excellent plan, from the point of view of both the public health movement and the life insurance companies, to give every applicant a Wassermann test? It might be objected that the cost involved would be incommensurate with possible results. But Mr. Arthur Hunter, in an address delivered at the eighth annual meeting of the Association of Life Insurance Presidents, showed that when only the better type of cases with a history of syphilis were accepted, there was still an extra mortality of 80 per cent. due to the disease. Consequently, with the expectation of life thus materially reduced, it would be to the advantage of the company to know who are the persons who would make the poorest risks. Such information, when obtained, could be turned over to the proper health authorities, who would then have a basis of fact, rather than speculation, on which to work.

32 Franklin Street.

2. This the writer has attempted, and the result will be published in the near future by the American Social Hygiene Association.
3. Weekly Bulletin, Department of Health, City of New York, May 24, 1919, p. 163.
4. Calculated from Vedder, E. B.: Syphilis and Public Health, Chapter I.
5. Calculated from the Report of the Surgeon-General, U. S. Army, 1918, p. 309.

Medicolegal

Evidence Sustaining Conviction of Murder

(People v. Card (Calif.), 180 Pac. R. 53)

The District Court of Appeal of California, First District, Division 1, in affirming a judgment of conviction of murder in the second degree, charged to have been committed by the defendant in the performance of a criminal abortion, says that the defendant contended that there was not sufficient evidence connecting him with the commission of the crime, and it was true that the deceased went from his offices to an all too speedy death to permit her statement as to what had occurred while she was in his offices to be given in the form of a dying declaration. But the evidence showed that the defendant maintained offices as a physician and surgeon; that there were several connecting rooms, one of which was his private office, and another was his reception room; that between these two rooms was a system of bells so arranged that a button touched in the reception room conveyed the information to the occupant of the private office that a patient was in waiting, and the touching of a button in the private office by its occupant informed the assistant in the reception room that the patient should be sent to the private office; that these responding bells were rung shortly after the deceased and her girl companion were admitted to the defendant's reception room. The evidence further showed that no other physician than the defendant occupied his private office; that when his assistant was thus advised that he was in his private office and ready for the patient, the deceased was directed to his door; that she returned in a few moments to the reception room to get a sum of money, on receiving which she went back into the defendant's private office; that she remained away from the reception room, where her friend remained in waiting, for the space of about an hour, when she was helped into the reception room by one of the defendant's assistants, and there given over to her friend with the instruction that the patient was to be taken to her home or room and given a dose of salts. She was then in a condition indicating to the point of certainty that during the hour spent in the defendant's private office something had been done to her which had destroyed her immediately preceding state of normal health, and left her weak, distressed, hardly able to walk, and bleeding to an extent which within a short while sapped her life. On reaching her room, less than a block away, she had to be put to bed, and there was then found on her a towel identical with those in use in the defendant's office. She died within a very few hours, her death being due to an abortion performed that day. When the defendant was interviewed by a detective officer, shortly after the girl's death, his demeanor, words and actions were very far from those of an innocent man. The court thinks this evidence was sufficient to justify the finding of the jury holding the defendant responsible for the decedent's death by means of a criminal abortion. A rehearing is denied by the Supreme Court of California.

Valid State Requirements as to the Branding of Foods

(Corn Products Refining Co. v. Eddy et al. (U. S.), 39 Sup. Ct. R. 325)

The Supreme Court of the United States, in affirming a judgment in favor of the defendants, says that they were the members of the state board of health of Kansas, and that the plaintiff sought to enjoin them from interfering with the sale of its proprietary table syrup called "Mary Jane" on the ground that it was misbranded, and in particular from interfering, because of Regulation 6 of the board, with persons dealing in or selling the syrup within the state of Kansas. The syrup, which was manufactured in Illinois, was composed of 85 per cent. corn syrup or glucose, 10 per cent. molasses, and 5 per cent. sorghum, and was sold in cans which bore labels that stated, among other things: "Mary Jane is guaranteed by Corn Products Refining Co. to comply with the Food and Drugs Act, June 30, 1906. Registered under serial number 2317. Mary Jane. A Table Syrup Prepared from Corn Syrup, Molasses and Pure Country Sorghum. Contains Sulphur Dioxide." Regulation 6 of the state board of health, on the effect of which the attack was centered, in the argument before the court, so far as pertinent, reads:

> Manufacturers of proprietary foods are required to state upon the label the names and percentages of the materials used, so far as is necessary to secure freedom from adulteration and misbranding: (1) In the case of syrups, the principal label shall state definitely, in conspicuous letters, the percentage of each ingredient, in the case of compounds, mixtures, imitations or blends. When the name of the syrup includes the name of one or more of the ingredients, the preponderating ingredient shall be named first.

It was urged that since the plaintiff's syrup was a proprietary food, made under a secret formula and sold under its own distinctive name, and since it contained no deleterious or injurious ingredients, the effect of the regulation in requiring the plaintiff to disclose on the label the ingredients and their proportions amounted to a taking of its property without due process of law. But evidently the purpose of the requirement was to secure freedom from adulteration and misbranding; the mischief of misbranding being that purchasers may be misled with respect to the wholesomeness or food value of the compound. And it is too plain for argument that a manufacturer or vender has no constitutional right to sell goods without giving to the purchaser fair information of what it is that is being sold. The right of a manufacturer to maintain secrecy as to his compounds and processes must be held subject to the right of the state, in the exercise of its police power and in promotion of fair dealing, to require that the nature of the product be fairly set forth.

The question of whether Regulation 6 was within the authority conferred on the state board was a question of state law. But the question of whether Congress has covered the field to the exclusion of state regulation is to be determined by what the act of Congress omits, not by what it contains, and by considering whether, in words or by necessary implication, Congress has prohibited the states from making any regulation in respect of the omitted matter; and the court holds that it has not, so far as the issues involved in this case were concerned. The proviso in Section 8 of the federal act that "nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredient to disclose their trade formulas, except so far as the provisions of this act may require to secure freedom from adulteration or misbranding," merely relates to the interpretation of the requirements of the federal act, and does not enlarge its purview or establish a rule as to matters which lie outside its prohibitions.

Tuberculosis and Injuries—Experts Differing in Opinions

(Kansas City Southern Ry. Co. v. Akin (Ark.), 210 S. W. R. 350)

The Supreme Court of Arkansas affirms a judgment for $3,000 damages in favor of plaintiff Akin, in this personal injury case wherein he alleged that there had been tubercle bacilli in his system for some time prior to the injuries complained of, but at the time he received such injuries he was in good health and the tuberculosis germs were encapsulated, innocuous and inactive; that as a result of the bruises produced by his injuries his strength and vitality were greatly affected, and by reason of his injuries the tuberculosis germs became active, and tuberculosis developed in his spermatic cords and testicles; that on account of this tuberculous condition a surgical operation had to be performed, resulting in the removal of his testicles. Several physicians, to whom a hypothetic question was propounded, answered that the injuries caused the condition of tuberculosis found in the plaintiff's testicles and spermatic cord at the time of the operation, when they were removed. The defendant propounded substantially the same question to experts introduced in its behalf, and also other hypothetic questions based on the testimony in its most favorable light from the standpoint of the defendant, and the answer to these questions was in effect that the injuries did not cause

the tuberculosis afterward developed in the plaintiff's testicles. Wherefore counsel for the defendant contended that the issue as to the proximate cause of the tuberculosis in the testicles was put at large in the realm of speculation and conjecture by the testimony of the experts.

Now as to whether or not the plaintiff was afflicted with active tuberculosis in his arm, which was arrested by amputation in 1906; and whether or not the germs of tuberculosis may be arrested, become encapsulated, inactive and innocuous, and remain in this condition in the system for several years, and then, by reason of some injury to the person, be revived and become active and hurtful, the court says were questions which would require scientific knowledge for their correct solution. These were matters beyond the grasp of the ordinary layman, but peculiarly appropriate for expert knowledge and opinion. Because the experts differed in their opinions on the same state of facts, assuming them to be true, was no reason for relegating to the realm of conjecture and speculation the issue as to whether or not the injury was the proximate cause of the tuberculosis thereafter developed in the plaintiff. The theory on which all expert testimony rests is that, when facts are established with reference to the subject-matter of inquiry which the common observation and experience of the jury would not enable them correctly to understand and interpret, then they may have the benefit of the opinions of those who, by reason of their special study and learning, have peculiar knowledge of the subject. Because experts differ in their opinions as to the conclusion to be drawn from the facts proved does not render the ultimate result to be determined by the jury one of speculation or conjecture. In such cases the question is one not of conjecture and speculation on the part of the jury, but rather a question of weight and credit to be given to the conflicting opinions of experts. If the experts differ in their opinion as to results, then it is the province of the jury to determine which has reached the correct conclusion. A contrary doctrine would result in the elimination of the opinions of all experts, unless they happened to be of one mind, and abrogate the rule of evidence permitting the introduction of such testimony.

Applying these principles to the facts of this record, it was therefore an issue for the jury as to whether or not the injuries produced by the alleged wreck were the proximate cause of the tuberculosis for which the plaintiff claimed damages, and the court did not err in refusing prayers for instructions which sought to withdraw that issue.

Suppression of Brothels a Valid Health Measure

(McKinley et al. v. United States (U. S.), 39 Sup. Ct. R. 324)

The Supreme Court of the United States, in affirming the judgment of the District Court of the United States for the Southern District of Georgia, holds valid the act of Congress of May 18, 1917, which authorized and directed the Secretary of War during the war to do everything by him deemed necessary to suppress and prevent the keeping or setting up of houses of ill fame or brothels within such distance as he might deem needful of any military camp, etc. The defendants, McKinley and another, who were convicted and sentenced on an indictment which charged them with having unlawfully kept and set up a house of ill fame within the distance designated by the Secretary of War, under the authority of the act of Congress, namely, within 5 miles of a certain military station of the United States, contended that Congress had no constitutional authority to pass this act. But that Congress has the authority to raise and support armies and to make rules and regulations for the protection of the health and welfare of those composing them, the supreme court says, is too well settled to require more than the statement of the proposition. Congress having adopted restrictions designed to guard and promote the health and efficiency of the men composing the army, in a matter so obvious as that embodied in the statute under consideration, may leave details to the regulation of the head of an executive department, and punish those who violate the restrictions. This is also well settled by the repeated decisions of this court.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Lar., Cleveland, O., Oct. 16-18.
American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.
American Assn. of Railway Surgeons, Chicago, Oct. 15-17.
American Child Hygiene Association, Asheville, N. C., Nov. 11-13.
American Public Health Assn., New Orleans, Oct. 27-30.
Assn. of Military Surgeons of the U. S., St. Louis, Oct. 13-15.
Delaware State Medical Society, Dover, Oct. 13-14.
Mississippi Valley Medical Assn., Louisville, Ky., Oct. 21-23.
Southern Medical Association, Asheville, N. C., Nov. 12-13.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

Sept. 15, 1919, 26, No. 1

Histology of Umbilical Cord of Pig, with Special Reference to Vasculogenic and Hemopoietic Activity of Its Extensively Vascularized Connective Tissue. H. E. Jordan, Charlottesville, Va.—p. 1.
Development of Cardiac Loop in Rabbit, with Special Reference to Bulboventricular Groove and Origin of Interventricular Septum. H. A. Murray, Jr., New York.—p. 29.
Ontogeny and Phylogeny of Sternum. F. B. Hanson, St. Louis.—p. 41.
Origin of Corpus Luteum of Sow from Both Granulosa and Theca Interna. G. W. Corner, San Francisco.—p. 117.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

September, 1919, 80, No. 501

Gynecology As a Specialty. F. H. Martin, Chicago.—p. 249.
*Uterine Myomas; Complications Seen in Practice. E. E. Montgomery, Philadelphia.—p. 256.
Hairpin As a Foreign Body in Female Bladder; Report of Case. W. P. Manton, Detroit.—p. 262.
*An Early Ovum In Situ, In the Act of Aborting. J. W. Williams, Baltimore.—p. 269.
*Experimental Reproduction of Premature Separation of Placenta. A. Morse, New Haven, Conn.—p. 283.
*Value of Repeated Small Blood Transfusions in Blood Stream Infections. J. O. Polak, Brooklyn.—p. 291.
Radium Treatment of Uterine Cancer. H. Bailey, New York.—p. 300.
Treatment of Papillary Tumors of Bladder in Women. H. A. Kelly, Baltimore.—p. 328.
Prenatal Care Propaganda. J. H. Larson, New York.—p. 335.
Case of Single Amnion Twin Pregnancy. O. N. Eastman, Burlington, Vt.—p. 343.

Uterine Myoma.—This study is based on the consideration of 251 consecutive patients with uterine myoma subjected to operation; in 102 patients partial and in 144 complete hysterectomies were done; in the remaining five cases the uterus was removed through the vagina. The mortality in the partial hysterectomies was 4.9 per cent. (five deaths); in the complete removal cases it was 5.5 per cent. (eight deaths). Montgomery points out that the existence of the fibroid, through the continued irritation or disturbance of the circulation, increases the danger of complicating infections. Tubal collections are not infrequent, large hematomatous cysts of the ovary are often found, and in many cases extensive adhesions and inflammatory changes greatly complicate the operative procedure. Intestinal, omental and vesical adhesions may so mat the structures together as to obliterate all landmarks and make hysterectomy in such cases one of the most difficult operations in surgery. The operator must be ready, instantly, to change his preconceived order of procedure for one adapted to the unexpected situation for the purpose of preserving and maintaining the important functions of the related viscera.

Study of an Early Ovum in Situ.—The specimen described by Williams represents an early human ovum, removed thirty-eight days after the cessation of the last period; it was hopelessly abnormal, and represents the youngest stage of hydatidiform mole with which Williams is familiar; it was in the act of aborting. The complete lack of development of the embryo, the absence of fetal vessels in the chorionic membrane and villi, and the hydatidiform changes in the

stroma of the latter, make it clear that the ovum was hopelessly abnormal, and that abortion was sooner or later inevitable. Furthermore, the specimen is regarded by Williams as a striking configuration of Mall's dictum that primary abnormalities of the ovum are probably the most frequent cause of abortion, and that the attempted abortion in this instance must be regarded as a conservative effort on the part of Nature to rid the organism of a structure which had failed to accomplish its allotted task.

Premature Separation of Placenta.—According to Morse the intramuscular lesions of the uterus in premature separation of the placenta are not provoked by an acute distention of the uterine cavity. They depend on obstruction of the uterine circulation. When such an obstruction is provoked artificially in rabbits by ligating the veins of one "horn" of the bicornate uterus, the lesions produced are identical with those in women suffering from this complication of pregnancy. Similar lesions are also observed following simple rotation of the uterus. The primary lesions in placental separation are an engorgement of the decidual sinuses and a hemorrhagic extravasation into the decidua; the intramuscular hemorrhages occur as a secondary lesion in those instances where the circulatory disturbance is excessive. Probably the excessive mobility of the uterus predisposes to a similar though spontaneous acute constriction of the veins of the broad ligament in women advanced in pregnancy. The albuminuria which sometimes accompanies placental separation probably is secondary to the disturbance in the uterine circulation and not an indication of a primary nephritic toxemia.

Blood Transfusions in Blood Stream Infections. — In Polak's discussion it is shown that after the bacteria have gained entrance to the blood stream the cellular elements of the blood are rapidly destroyed. The heart, liver, spleen and kidneys show definite pathology and acidosis develops. Small repeated blood transfusions increase the cellular elements, stimulate resistance and raise the blood pressure and hence add to the natural defense.

American Journal of Public Health, Concord, N. H.

September, 1919, 9, No. 9

Are We Physically Fit? R. Blue, Washington, D. C.—p. 641.
How the Army Controlled Disease. G. A. Soper, Washington, D. C.—p. 646.
Scope of a Federal Department of Health. P. H. Bryce, Ottawa, Ont.—p. 650.
So-Called Nonresident Death. A Preliminary Note on An Experimental Study of this Subject in New York State. O. R. Eichel, Albany.—p. 654.
Bacteriologic Dilution Scale and Dilution as a Bacteriologic Unit. W. F. Wells, U. S. Army.—p. 664.
Why Is Poor Ventilation Harmful? C. I. Reed.—p. 668.
Reduction of Infant Mortality by Economic Adjustment and By Health Education. J. Levy, Newark, N. J.—p. 676.
Schools and School Children. O. W. Hallin, Brahan, Minn.—p. 681.

American Review of Tuberculosis, Baltimore

September, 1919, 3, No. 7

*Five Years' Experience with Artificial Pneumothorax. C. D. Parfit and D. W. Crombie, Gravenhurst, Ontario, Can.—p. 385.
Some Common Mistakes in Administration of Artificial Pneumothorax. A. G. Sheftic, Albuquerque, N. M.—p. 403.
*Predisposing Factors in Pulmonary Tuberculosis. F. W. Shaw, Ft. Totten, N. D.—p. 410.
*Rationale of Fresh Air Treatment of Pulmonary Tuberculosis, With a Modified Application of It. S. Baruch, New York.—p. 413.
Psychotherapy and Tuberculosis. S. E. Jelliffe and E. Evans, New York.—p. 417.

Experience with Artificial Pneumothorax.—This analysis by Parfit and Crombie concerns sixty-three patients for whom induced pneumothorax was undertaken. In the ordinary course of events the outlook was fairly good in only 2 per cent., doubtful in 25 per cent. and bad in 73 per cent. of the series. The patients were classified 24 per cent. moderately advanced and 76 per cent. far advanced. Only 6 per cent. were clinically unilateral. The disease had been manifest an average of thirty-two months; the extreme periods were ten years, the longest, and three months, the shortest. The object of the treatment was to afford relief from some distressing symptoms in 48 per cent. of the patients. In 52 per cent. there seemed a good chance to check the progress of the disease for a longer or shorter period. The procedure was undertaken as an urgent measure for the control of hemorrhage in three patients without regard to suitability otherwise. In 95 per cent. of the cases—sixty—it was a matter of election and six of these cases were simplified by the presence of fluid, easily replaced. During the course of the treatment of the whole series of cases, forty-three so-called mishaps occurred as the result of 757 punctures and 634 refills. Subcutaneous emphysema of sufficient degree to warrant a note occurred in eleven cases. Mediastinal emphysema occurred fifteen times in nine patients. Escape of gas into the peritoneal cavity in a patient at the third refill took place after 500 c.c. had been well borne at 8 cm. water pressure. Rupture of the pleural pocket into pulmonary tissue, presumably through a cavity wall, occurred in two cases. Puncture of a bronchus or cavity occurred once with a former patient who had returned for investigation of the condition of the pneumothorax. Penetration of a large vessel occurred once. Traumatic pneumothorax from puncture of the lung occurred four times. Gas embolism occurred in one case along with traumatic pneumothorax. Pleural reflex of very mild nature occurred four times in three cases. Fainting on slight movement following a refill occurred twice in one case with a well established, voluminous pneumothorax. The authors regard this procedure as the most effective form of treatment for the progressive case of any stage, and for indolent, moderately advanced cases. It should be applied without undue delay in those cases which conform to the requirements of selection, after a relatively brief unsuccessful application of other forms of treatment.

Predisposing Factors in Pulmonary Tuberculosis.—Having in mind the treatment of pulmonary tuberculosis by the use of artificial pneumothorax, Shaw conceived the idea that if he injected human tubercle bacilli into the blood stream of a rabbit with one collapsed lung, a lesion might develop in the uncollapsed lung. The results were the reverse: the lesion developed in the collapsed lung and in no other organ. That this holds true whether the bacilli are injected into the blood stream or into the trachea of a rabbit having a collapsed lung, was seen from the experiments. Therefore, it is evident that the collapsed lung is not a defense against the tubercle bacillus.

Fresh Air Treatment of Pulmonary Tuberculosis.—Branch states that judging from clinical results, the vasomotor stimulation of a judicious water treatment enhances the fresh air effect so much that the final result is improved at least 50 per cent. by its addition to the other treatment. Especially in many cases forbidding exercise all the good effects of the latter are obtained from a properly administered water procedure. There is improvement of the pulse, nutrition, etc., without the injurious exertion incident to exercise. In all cases the procedure should be mild but methodical, and not left to the patient's fancy. The following procedures have afforded most satisfaction in Baruch's work. If the patient is able to treat himself, he may begin with cool water friction daily after leaving his warm bed, well wrapped and slippered for his bath room. Dipping the middle portion of a towel in water at 90 F., he twists it so as to expel most of the water. After unfolding it he grasps each end with a hand, throws it over his back and makes rapid passes in both directions, freshly saturating the towel and wringing it several times. He then wrings the towel out of the water and treats the front of the body and thighs to the point of good friction with it. After drying he should proceed into the fresh air, to reap the full benefit of the vasomotor stimulation. The treatment may be repeated on the same afternoon or the following day according to the urgency of the case, reducing the water temperature each time or less frequently according to reaction until 70 or 65 F. is reached. Then the quantity of water left in the towel may be increased or the application be prolonged. When the patient is unable to treat himself, the cold friction may be used by the nurse with a mitten or towel repeatedly wrung out, the rule being that it is done quickly and thoroughly. It may readily be done in bed. The extremities are omitted. Another more rapid and pleasant procedure is the cold affusion. The patient, while warm out of bed or warmed by a blanket wrapping of one-

half hour, is seated in a previously warmed bath tub the outlet of which is open. From a small tub or large basin water of a temperature of 90 F. is dipped with a broad mouthed vessel and poured with some force over the shoulders, back and chest of the patient successively. Begin with two affusions over each part, reduce the water temperature daily or twice daily when needed, until 65 F. is reached, then increase the quantity of water used. Dry the patient and send him out of doors. Good reaction is required, or at least an absence of chilliness after dressing. The water temperature is not increased if the patient feels chilly after dressing, but the procedure is made brief and is gradually restored in duration as reaction improves. In the beginning reaction may be promoted by friction, but the aim of all procedures for this neurovascular training is to evoke spontaneous reaction.

Annals of Surgery, Philadelphia

September, 1919, 70, No. 3

*Knee Joint War Injuries: Willems' Treatment; Management of Subsequent Infection by Drainage and Mobilizations. C. A. McWilliams, New York, and W. B. Hetzel, Pittsburgh.—p. 257.
*Treatment of Recent Wounds of Knee Joint. E. H. Pool, New York, and J. H. Jopson, Philadelphia.—p. 266.
*Open Amputation Through Knee Joint. M. K. Smith, New York.—p. 287.
Gunshot Injuries of Knee Joint. In Base Hospital. V. C. David, Chicago.—p. 290.
Fracture of Acetabulum with Intrapelvic Displacement of Femoral Head. Report of Case. M. M. Peet, Ann Arbor, Mich.—p. 296.
Repair by Autogenous Bone Grafting in Fractures of Long Bones. Report of Cases. F. Martin, Baltimore.—p. 305.
*Correction of Deformity in Fractures: New Conception of Mechanism of Fractures of Upper Extremity. T. T. Thomas, Philadelphia.—p. 359.
*Pneumoperitoneum. Method of Detecting Intestinal Perforation. W. E. Dandy, Baltimore.—p. 378.

Knee Joint Injuries.—Thirty-two patients of the eighty-two whose clinical history was analyzed by McWilliams and Hetzel did not have a fracture. Eight had simple fractures, while the remaining forty had combinations of comminuted fractures, the patella being fractured in eighteen, the femur in twenty-nine, the tibia in twelve cases and the fibula in one case. Of seventy-three patients operated on for knee joint injuries, of whom final reports were obtainable as to infection, fifty-seven remained clean; in seventy of seventy-six known cases the synovial membrane was completely closed while six were drained into the joint. In general, Willems' treatment was not well carried out. Generally a splint was not used, except in cases where a fracture made it imperative, but the lack of night nurses made active motion at night impossible and in the daytime the patient was left to make the motions by himself. There was no general system, even in the daytime, for forcing the patients to make active motions regularly. Even with this abortive plan, all the operators say that early motion gave excellent results, function having returned well in a short time. The too early evacuations sometimes stifferend the joints irretrievably.

Treatment of Recent Wounds of Knee Joint.—Pool and Jopson emphasize that in all cases of wounds of joints by projectiles, except certatin perforating (through and through) wounds by bullets, operation should be done. The principles of conservative treatment are thus summarized: complete débridement of the tract of the projectile through the joint; absolute closure of the joint by suture; primary or delayed closure of the superficial parts according to the rules laid down for primary suture of the soft parts alone; finally, early active motion. Thirty-four cases are analyzed.

Open Operation Through the Knee Joint.—Open amputation through the knee joint, as opposed to open amputation through the lower end of the femur, Smith claims, offers the following advantages: Fresh bone and marrow cavity are not exposed to infection; there is opportunity for a longer, and in some instances an osteoplastic stump; operative shock is minimal.

Correction of Deformity in Fractures.—In Thomas' opinion the roentgen ray is not being used with sufficient frequency to determine the results of efforts at reduction of fracture deformity. He is convinced that sufficient use of it for this purpose would probably demonstrate that reduction of overlapping of fragments in fractures of the shafts of long bones, without operation, is rarely accomplished. The contraction of the surrounding muscles caused by the irritation of fragments never relaxes until the muscle is permanently shortened by organization of the traumatic exudate which always infiltrates these muscles about the fracture. Probably no known method of extension can effectively overcome this contraction. Thomas claims that most fractures and dislocations of the upper extremity are probably due to falls on the hand. A dislocation is merely a fracture of the skeleton at a joint with displacement of the fragments. In a fall the upper extremity is interposed, palm down and elbow rigidly extended, to break the force of the fall, so that the mechanism by which the force is applied to it is essentially the same in all falls. The common and typical displacements in fractures and dislocations of the upper extremity can be explained more effectively by such a fracturing force than by the theory of the pull of certain special muscles.

Pneumoperitoneum.—From personal observation Dandy is convinced that perforation of the intestines or the stomach can be diagnosed by the roentgen-ray findings. The escaping intestinal gases accumulate under the diaphragm if the head is elevated. The roentgenogram shows the diaphragm and liver sharply outlined and a collection of air separating these structures. Localized collections of gas in the abdominal walls, the buttocks, etc., may betray a colon infection and therefore an abscess resulting from a perforated bowel. No intraperitoneal injections of air have been made in patients, although Dandy feels that the procedure is safe and should offer valuable information which may lead to correct diagnoses in obscure cases. By determining the exact shape, size and position of various abdominal structures, a big lead will be obtained not only as to the exact organ which is diseased but also as to the pathology of the organ involved. Many patients may thereby be spared a useless exploratory laparotomy by the disclosure of inoperable conditions, whereas others may be offered specific rather than exploratory operations, or a rational rather than an empiric form of treatment.

Arkansas Medical Society Journal, Little Rock

September, 1919, 16, No. 4

Abdominal Drainage. T. J. Stout, Brinkley.—p. 75.
Public Health and Democracy. C. W. Garrison, Little Rock.—p. 80.
Practitioner's Place in Public Health. J. B. Roe, Newark.—p. 81.

Boston Medical and Surgical Journal

Sept. 25, 1919, 181, No. 13

*Treatment of Infected Bone Wounds. Report of Cases. F. J. Cotton, Boston.—p. 379.
*Method for More Accurate Study of Injuries to Atlas and Axis. A. W. George, Boston.—p. 395.
Certain Diagnostic Aspects of Medicosurgical Diseases of the Gastro-Intestinal Tract. C. W. McClure, Boston.—p. 399.

Treatment of Infected Bone Wounds.—Cotton reviews the work done in these cases at U. S. Army General Hospital No. 10, Boston. The good results obtained are credited to Carrel's technic and the use of surgical solution of chlorinated soda. Three hundred and forty-six patients were admitted. One hundred and eighty-two operations were performed. There was one death; a patient with empyema, who came in moribund, died before he could be operated on. There were two amputations, one for a hopelessly crushed and crippled leg with a septic knee, one deliberately after the wounds had been healed for a limb so badly damaged and paralyzed as to be worthless. There have been no reamputations, no resections and no cases of secondary osteomyelitis after the cleaning operation.

Method for More Accurate Study of Injuries to Atlas and Axis.—The principal object of George's method is to leave with students some fundamental facts: first, the study of the anatomy; second the variations from the normal.

Colorado Medicine, Denver

September, 1919, 16, No. 9

Stomach Surgery. Report of Cases. A. R. Pollock, Monte Vista.—p. 220.
Eversion of Tissue Margins in Wound Approximation. C. E. Tennant, Denver.—p. 224.
Breech or Pelvic Presentations. M. R. Fox, Sterling.—p. 226.
Fifty Appendectomies Under Local Anesthesia. L. E. Likes, and W. O. Sheller, Lamar.—p. 230.

Iowa State Medical Society Journal, Des Moines

Sept. 15, 1919, 9, No. 9

Mental Hygiene and the War. F. P. Norbury, Jacksonville, Ill.—p. 299.
Pneumonia Situation in Camp Pike, Arkansas. C. H. Herrmann, Jr., Amana.—p. 315.

Journal of Cutaneous Diseases, Chicago

September, 1919, 37, No. 9

*Alkali Reserve of Blood in Various Diseases of Skin. H. J. Schwartz, O. L. Levin and H. C. Mahnken, New York.—p. 575.
*Unusual Case of Granuloma Annulare. A. W. Stillians, Chicago. —p. 580.
*Neurodermatoses and Pseudolichens. F. Wise, New York.—p. 590.

Alkali Reserve in Skin Diseases.—The authors confined their attention almost entirely to the inflammatory dermatoses. They examined 139 patients of whom eighty, or 59.7 per cent., gave normal values; fifty, or 35.9 per cent., gave values indicating a moderate acidosis, and one, or 0.7 per cent., showed a severe acidosis. This last patient had diabetes complicated with carbuncles. Included in this group were cases of sycosis, acne, psoriasis, eczema, pruritus, erythema nodosum, dermatitis herpetiformis, erythema multiforme and lupus erythematosus.

Granuloma Annulare: Cure by Means of Radium.—The odd features in Stillians' case were the entire absence of ringed lesions, the failure to localize on the hands, its occurrence in a patient who has a persistently positive Wassermann reaction, and its superficial resemblance to xanthoma. The administration of potassium iodid, 10 grains, three times a day, and mercurial inunctions, had no effect whatever on the lesions. Salicylic plaster, worn for forty-eight hours, made no impression on the lesions. Roentgen rays administered short of the erythema dose gave no result. The Kromayer lamp pressed on (without blue filter) long enough to cause a sharp reaction, had no effect on the lesions. Radium, filtered through 4 mm. of aluminum, cleared up the ankle and knee lesions promptly, but those on the elbows were stubborn, requiring a larger dose, which was sufficient to leave a scar in one spot, without clearing up the lesion entirely.

Neurodermatoses.—Wise discusses a certain peculiar morbid change in the skin, to which a variety of names has been allotted, the most familiar being lichen simplex chronicus, lichen chronicus circumscriptus, neurodermatitis, prurigo circumscriptum and pruritus with lichenification. He also makes a brief report of his own observations, based on clinical and microscopic studies.

Journal of General Physiology, Baltimore

Sept. 20, 1919, 2, No. 1

Comparative Studies on Respiration. VII. Respiration and Antagonism. W. J. V. Osterhout, Cambridge, Mass.—p. 1.
14. VIII. Respiration of Bacillus Subtilis in Relation to Antagonism. M. M. Brooks, Cambridge, Mass.—p. 5.
14. IX. Effects of Antagonistic Salts on Respiration of Aspergillus Niger. F. G. Gustafson, Cambridge, Mass.—p. 17.
Relative Physiologic Effects of Beta and Gamma Rays on Egg of Nereis. A. C. Redfield and E. M. Bright, Boston.—p. 25.
Changes in Protoplasmic Consistency and their Relation to Cell Division. R. Chambers, New York.—p. 49.
Change in Bar Gene of Drosophila Involving Further Decrease in Facet Number and Increase in Dominance. C. Zeleny, Urbana, Ill. —p. 69.
Epinephrin in Annelids. Comparative Study of Origin of Sympathetic and Epinephrin-Secreting Systems and of Vascular Muscles Which They Regulate. J. F. Gaskell, Cambridge, Eng.—p. 73.
Electrification of Water and Osmotic Pressure. J. Loeb, New York. —p. 87.

Journal of Laboratory and Clinical Medicine, St. Louis

September, 1919, 4, No. 12

*Experimental Study on the Impregnation of Cloth With Pediculicide Substances. W. Moore and A. D. Hirschfelder, Minneapolis.—p. 707.
*Relation of Pancreas to Diabetic State. D. M. Ervin, Cincinnati.—p. 711.
*Studies on Cholesterol. VI. Value of Blood Cholesterol Determinations and Their Place in Cancer Research. G. Luden, Rochester, Minn. —p. 719.
*Isaacson Method for Estimating Glucose. E. C. Pennell, Santa Barbara, Calif.—p. 736.
Modified Portable Artificial Respiration Outfit. J. A. Hillas, Chicago. —p. 737.
*Use of Flocculo Formation To Corroborate Wassermann Test. R. J. McCann, New York.—p. 742.

Investigation of Pediculicide Substances.—A number of derivatives of cresol, preserving the general cresol structure, but diminishing the volatility, were experimented with by Moore and Hirschfelder to test their power to kill lice. The calculated amount of bromin was dropped from a separating funnel directly into glacial acetic acid containing the cresol and a small piece of bright iron wire as a catalyzer. Bromination, as shown by titrating a sample with potassium iodid and thiosulphate, was complete in less than one hour. The mixture was then neutralized, separated and filtered off, washed first with sodium thiosulphate to remove any excess of bromin or bromin that had entered the hydroxyl group, then with sodium bicarbonate and water and finally filtered or separated off. Chlorin was introduced by bubbling into the glacial acetic acid solution of cresol in the presence of iron wire until the calculated weight of chlorin had been taken up. The substances were otherwise treated in the same way as the bromin derivatives. Iodin was introduced in saturated sodium bicarbonate solution in the presence of potassium iodid. A series of monobrominated and dibrominated chlorinated and iodocresols, orthocresol, metacresol and paracresol was thus prepared in which the halogen had entered the ring. By this mode of treatment the trihalogen compounds of the metacresol only are formed and not trihalogenated ortho and para compounds were obtained. Chlorin was also introduced into monobrominated metacresol and in this way a monobrom, monochlor and monobromidchlormetacresol was formed and in the same way a dibrommonochlormetacresol. The substances which were found to be best suited to the purpose were the dibrommetacresol which lasted ten days and the dichlormonobrommetacresol which lasted thirteen days. These compounds seemed to fulfil the requisites of the problem so far as a laboratory trial could demonstrate.

Relation of Pancreas to Diabetic State.—The experiments reported on by Ervin show that a depancreatised animal as long as six hours after depancreation develops a hyperglycemia and glycosuria just as in the true state of pancreatic diabetes, yet consumes glucose at the same rate as the normal animal. The hyperglycemia and glycosuria are dependent on the rate of synthesis of glucose into glycogen and not on interference with the normal rate of oxidation. Ervin believes that the internal secretion of the pancreas is an ensyme, similar to the external secretion but diverted into the portal blood for the rapid synthesis of glucose into glycogen. The failure of its action is the cause of the state of pancreatic diabetes; a diabetic is one who fails to synthetize the absorbed glucose into glycogen at a sufficiently rapid rate to prevent a hyperglycemia.

Cholesterol Determinations in Cancer Research.—Luden's observations suggest that the test for cholesterol is capable of giving valuable clinical information, although it should not be looked on as a specific, diagnostic test, such, for example, as the Wassermann test. It might fitly be compared to the test for albumin in the urine. The test furnishes information concerning cholesterol metabolism; it will, therefore, furnish information about the disturbances of cholesterol metabolism connected with cholelithiasis and carcinoma, for instance. A detailed account of the technic used by Luden is given. This technic is based on the determination of more than 1,500 individual blood samples. The cholesterol content of the blood is influenced by the nature of the diet, the rate of basal metabolism, radium treatment, bacterial infection (ulceration, infectious disease) and hemorrhage. Luden insists that determinations of blood cholesterol should have a place in cancer research. Details of observations made in sarcoma and carcinoma cases are given.

Isaacson Method for Estimating Glucose.—The rapid colorimetric for determining glucose in urine, which was published by Isaacson, was tried out by Pennell with unsatisfactory results.

Flocculo Formation Reactions and Wassermann Test.—McCann investigated the methods of Porges and Meier, Elias, Neubauer, Porges and Salomon, Klausner and Herman and Perutz. From the results obtained the author is convinced that, possibly with the exception of the Herman and Perutz

method, these methods cannot be used with any great degree of certainty to corroborate the Wassermann test, and especially so in those cases where the Wassermann gives a doubtful or anticomplementary result.

Journal of Nervous and Mental Diseases, New York and Lancaster, Pa.

August, 1919, 50, No. 2

*Mechanistic Classification of Neuroses and Psychoses Produced by Distortion of Autonomic Affective Functions. E. J. Kempf, Washington, D. C.—p. 105.
*Treatment and Study of Twelve Nonparetic Neurosyphilitics Treated by Intraventricular Injections of Arsphenaminized Serum. A. L. Shoog, Kansas City, Mo., and K. A. Menninger, Topeka, Kans. —p. 114.
*Central Nervous System in Purpura Hemorrhagica. A. Gordon, Philadelphia.—p. 144.

Mechanistic Classification of Neuroses.—Kempf outlines a system which is based essentially on the integrative functions of the nervous system of which the psychoses are considered to be symptoms and which maintains that the same forces which build up a personality when harmoniously integrated cause its deterioration when unadjustable conflicts occur. These neuroses are (1) acute or (2) periodic or (3) chronic; benign or pernicious; of the suppression, repression, compensatory, regression or dissociation type. Mechanistic differences, common symptoms and common causes are discussed.

Treatment and Study of Twelve Nonparetic Neurosyphilitics.—Serum arsphenamized in vivo was used by Skoog and Menninger. The reactions were not severe, as a rule. Marked improvement resulted in two cases; slight improvement in six cases, no improvement in two cases and death occurred in two cases. The improvement showed no tendency to follow diagnostic classes. On the whole, the treatment appears to have given encouraging results. From two to four injections were given in each case, in doses varying from 1 to 40 c.c. Immediate reactions consisted of a slight pulse acceleration, negligible respiratory rate change, headache, pains in the neck, back and limbs, nausea and vomiting. The intensity of the reaction depended to a considerable degree on the size of the dose, the amount of hemoglobin in the serum and the priority of the injection.

Central Nervous System in Purpura Hemorrhagica.—According to the findings of Gordon in one case, the lesion affects exclusively the cells of the gray matter throughout the entire central nervous system. The lesion consisted of destruction of cells and formation of vacuoles.

Maine Medical Association Journal, Portland

September, 1919, 10, No. 2

Development and Operation of Our Base Hospitals. W. E. Kershaw, Bath.—p. 31.
Teeth of School Children. J. L. Johnson, Mars Hill.—p. 38.

Nebraska State Medical Journal, Norfolk

September, 1919, 4, No. 9

Mitral Stenosis. L. Crummer, Omaha.—p. 258.
Aortic Disease. F. Conlin, Omaha.—p. 260.
Ocular Manifestations of Lethargic Encephalitis. J. M. Patton, Omaha. —p. 265.
Management of Mastoids in Army Hospitals. J. B. Potts, Omaha. —p. 269.
Army Roentgen Observations of Chest Conditions. W. H. Mick, Omaha. —p. 273.

New Jersey Medical Society Journal, Orange

September, 1919, 16, No. 9

Experiences in An Evacuation Hospital. E. Eliot, Jr., New York City.—p. 301.
Child Welfare Work in France. J. C. Baldwin, Baltimore.—p. 310.

New York Medical Journal

Sept. 27, 1919, 110, No. 13

Diet in Digestive Diseases in Infancy. J. P. C. Griffith, Philadelphia. —p. 529.
Medical Theory and Practice of an Eighteenth Century Doctor of Divinity. W. R. Riddell, Toronto.—p. 532.
Requirements of Medical Profession for Military Service. A. L. Benedict, Buffalo.—p. 536.
Dementia Praecox. Description and Diagnosis. J. F. W. Meagher, Brooklyn, N. Y.—p. 540.
Application and Interpretation of Wassermann Test and of Supplementary Laboratory Procedures. H. Greeley, Brooklyn, N. Y.—p. 546.
Sleeping Sickness. C. G. Cumston, Geneva, Switzerland.—p. 550.

New York State Journal of Medicine

September, 1919, 19, No. 9

Differential Diagnosis in Stricture and Calculus of Ureter. G. L. Hunner, Baltimore.—p. 323.
Diagnosis of Renal Colic. G. W. Stark, Syracuse, N. Y.—p. 331.
Indications for Operation for Gastric and Duodenal Ulcer. C. N. Dowd, New York.—p. 335.
Rôle of Provisional Appliance in Treatment of Amputations of Lower Extremity. C. C. Yeoudt, Pittsburgh.—p. 339.
Concerning Refitting of Blinded and Blind. G. E. de Schweinitz, Philadelphia.—p. 343.

Virginia Medical Monthly, Richmond

September, 1919, 46, No. 6

Flat Feet. W. L. Powell, Roanoke, Va.—p. 131.
Treatment of Chronic Pyelitis. S. B. Cary, Roanoke, Va.—p. 133.
Radical Mastoid Operation: Indications. E. G. Gill, Roanoke, Va. —p. 134.
Calomel, Castor Oil and Turpentine. R. H. Garthright, Vinton, Va. —p. 137.
The Why and the How of Electronic (Radiant) Force; Physical Diagnosis; Correlation with Green and Medium Methods; Syphilis Thesis No. 5 H. E. Jones, Roanoke, Va.—p. 139.
Tonsils, As Related To Singing Voice Production. M. R. Paville, Roanoke, Va.—p. 142.
Some Guy Ropes for Doctor in Practice. J. D. Willis, Roanoke, Va. —p. 144.
Treatment of Burns. F. Flinn, Roanoke, Va.—p. 145.

Wisconsin Medical Journal, Milwaukee

September, 1919, 18, No. 2

Recognition of Local and General Resistance as Guides in Treatment of Certain Chronic Malign Affections. J. L. Yates, Milwaukee. —p. 121.
*Etiology of Banti's Disease or Splenic Anemia. H. T. Kristjanson, Wauwatosa, Wis.—p. 125.
Blood Transfusion. W. F. Lorenz, Mondota.—p. 127.
*Influenzal Appendicitis. L. M. Warfield, Milwaukee.—p. 129.
Proper Manner of Submitting Material to a Toxicologist in Medicolegal Cases. A. S. Loevenhart, Madison.—p. 132.

Etiology of Banti's Disease or Splenic Anemia.—Kristjanson's studies were made in a case of splenic anemia or Banti's disease in which the spleen was removed. Immediately after the removal of the organ, implants were placed on freshly prepared blood agar, Dorsett's egg medium and Loeffler's blood serum, under most careful aseptic conditions. These tubes were then sealed and placed in the incubator for ten days. On the tenth day very small grayish colonies could be seen in close vicinity to the piece of tissue removed from the spleen in one tube. A smear from one of these colonies showed mostly coccoid forms arranged in small irregular clumps; these clumps, however, did not have the characteristic grouping of the staphylococcus family. Subcultures were made on fresh blood serum slants. In four days a very slight filmlike growth, barely visible to the naked eye, appeared. Smears from this growth revealed cocci, similar in appearance and size to those observed in the original culture. This micro-organism retains the Gram stain and is nonacid fact. The effects produced on animals by repeated intravenous inoculations with the organism were marked systemic reactions indicated by rise in temperature and leukocytosis. These experimental inoculations in the dog produced progressive enlargement of the spleen with gradually increased fibrosis and perisplenitis. The histologic changes in the spleens were quite like those occurring in early Banti's disease. Control animals inoculated under identical conditions with staphylococci, colon bacilli and pseudodiphtheria bacilli showed no progressive fibrosis of the spleen but had symptoms of general infection from which they succumbed. As a constant feature, the experimental animals inoculated with the organisms isolated from the spleen in Banti's disease gave a positive complement fixation, using a bacterial antigen and the sheep's hemolytic system. The biologic characteristics of the organism are given in detail.

Influenzal Appendicitis.—Warfield discusses cases presenting a syndrome which simulated appendicitis but which was not appendicitis. It was influenza beginning with intestinal symptoms. Cases are cited.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

June, 1919, 42, Pt. 2

*Gunshot Wounds of Scalp: Neurologic Signs Presented. G. Jefferson. —p. 93.
*Biologic Effects Due to High Explosives. A. Carver and A. Dinsley. —p. 113.
Development of External Form of Human Cerebellum. J. W. Langelaan. —p. 130.

Gunshot Wounds of the Scalp.—The observations recorded by Jefferson are based on a series of fifty-four unselected average cases of scalp wounds as seen at the base in France. A large number of the patients showed generalized signs; a history of unconsciousness, complete or partial, with vomiting, nausea, headache, and exaggeration of the tendon jerks generally. Only five patients out of the whole series showed no positive neurologic signs at all. In ten more the only symptom complained of was headache, but this was often so severe and the patients were mentally so dull for a short time that it was evident that the brain had received a severe shaking up. One fourth of the patients allege that they were actually unconscious for brief periods, while another fourth were stunned, frequently being knocked down by the impact of the missile. Headache was present in forty-five cases, definitely absent in six, and not noted in three. Giddiness, was the next most common sign, only being noted on gross changes of posture, and therefore later in convalescence when such active movements began to be attempted. It was never a serious factor. Vomiting occurred in eight cases and nausea was, or had been, present in thirteen. Tendon jerks were exaggerated in twenty cases, and of these eight presented increase of both arm and leg jerks. Increase of the arm jerk always portended a graver injury; and cerebral injury was always suspected when they were active. True ankle and patellar clonus, continuous and regular, was never found, but a few beats, from two or three to six, occurred in seven cases. But when present on one side only, even this mild form has a value. In none of these series was there any injury to the skull, yet there were eleven definite local contusions of the motor cortex, four of the visual, and two more in which a motor lesion was associated with a sensory disturbance of the hand. Three presented jacksonian seizures, and three were trephined on the neurologic evidence; in two an extradural clot was found; in one, nothing abnormal was noted. There were signs of contralateral injury by contrecoup in four cases.

Biologic Effects Due to High Explosives.—The present tendency to regard the neuroses of war as of exclusively emotional origin is objected to by Carver and Dinsley. They plead for a more general recognition of the underlying physical basis demonstrable in a considerable proportion of them. It it held that the neuroses of war be brought about by the action of "purely emotional shock," by the action of "purely physical shock," and by a combination of these two factors. The combination is the most common occurrence.

British Medical Journal, London

Sept. 6, 1919, 2, No. 3063

Educational Number.

Sept. 13, 1919, 2, No. 3064

*Nature of Rabies and Antirabic Treatment. D. Semple.—p. 333.
*Etiology of Disordered Action of Heart. Report on 7,801 Cases. J. A. Venning.—p. 337.
Pathology and Treatment of Stiff Knee in Relation to Compound Fracture of Femur. C. B. Alexander.—p. 339.
Treatment of Bilharziasis by Tartar Emetic. A. Innes.—p. 340.
Case of Hydrocephalus. S. Ledge.—p. 342.
Flat Foot. H. Smith.—p. 343.

Rabies and Antirabic Treatment.—Semple states that if a dog shows signs of rabies within ten days from the date of inflicting the bite, the person bitten should receive antirabic treatment as soon as possible after the condition of the dog had declared itself. A person severely bitten on the head, face or neck would not be justified in waiting ten days to know whether the animal was infective or not. A delay of ten days, or even four or five days, in a case of that kind might be disastrous, as it might then be too late for successful treatment; the safest course to adopt in such cases would be to commence antirabic treatment at once, and as soon as it became evident that the dog was not infective leave it off. In a rabies infected district a person bitten by a stray dog which subsequently disappeared and was not again seen or heard of should receive antirabic treatment as a precautionary measure. In a rabies infected area it would be a mistake to destroy a healthy looking dog immediately after it had bitten any one, because then all information regarding his condition would be lost unless the carcass or a portion of the brain was sent to a laboratory for experimental tests, which would mean a delay of from four to five days, up to a period of three weeks, or possibly longer, according as to whether Negri bodies were looked for and found, or the inoculation of an animal carried out.

Disordered Action of Heart.—In Venning's opinion the strain of warfare, mental and physical is the chief cause of the symptoms of D. A. H. The causation of next importance is infective diseases, and the majority of these were contracted in civil life, rheumatic fever being the worst offender.

Bulletin of Naval Medical Association of Japan, Tokyo

April, 1919, No. 23

Tumor Resembling Sarcoma of Kaposi. K. Maruta.—p. 1.
*Cause of Cold Abscess of Thoracic Wall. R. Shiozawa.—p. 2.
*Sinuous Soft Chancre and Vaccine Treatment of Inguinal Bubo. T. Kurita.—p. 2.
*Cancer Diagnosis from Urine. K. Takei.—p. 3.

Cause of Cold Abscess of Thoracic Wall.—Shiozawa maintains that these cold abscesses may be caused by a typical tubercle in the connective tissue in the environment of the rib, when there was no change in the bone or the cartilage itself. Out of twelve specimens examined by him, pathologic changes of the rib or the cartilage were present in four while in the remaining eight cases he could establish the existence of typical tubercles in the environment of the rib with no charge of the bone or the cartilage at all, the proportion of the former to the latter being 1 to 2. The principal site of the latter affection which showed the typical pathologic features ascribed to tubercle, corresponding with the predisposed locality for the caries of the rib, was in the subpleural tissue between the costal pleura and the interior intercostal muscle. All the patients from whom these specimens were taken had some tubercular change in some other part of the body, but its relation with the cold abscess of the thoracic wall was not established.

Vaccine Treatment of Inguinal Bubo.—Kurita treated eighteen patients who had inguinal bubo associated with normal soft chancre by a vaccine made of Ducrey's bacillus. This treatment had a good effect, mitigating the pain of the bubo and the bubo in its first stage was dispersed by the sixteenth day on the average. The advanced bubo and the so-called abdominal bubo were also affected beneficially by this treatment. The only untoward symptoms resulting from the use of the vaccine were pain at the site of inoculation and fever with headache, shivering and giddiness.

Cancer Diagnosis from Urine.—The sulphur reaction of Salomon and Saxl as done by Takei gave positive results in 81.7 per cent. of cancer cases, 57.14 per cent. of suspected cancer cases and 16.0 per cent. of cases not associated with cancer, while Kiuchi's method was positive in 89.66 per cent., 54.55 per cent. and 26.66 per cent. respectively. Takei claims that from the clinical point of view, the first method is a little more accurate than the second. The sulphur method is less expensive than Kiuchi's, but the first method is more complicated and takes longer for its completion than the second, the first taking two and a half days, while the second is completed in one day. The quantity of urine needed for the first method is larger than for the second, and albumin contained in urine, if any, must be removed entirely before carrying out the test, while there is no such trouble with the second procedure. In the first method the degree of reaction varies with the nutrition of the patient examined and the pigment of urine and drugs taken by the patient must be taken into account while in the second these factors are almost negligible.

Dublin Journal of Medical Science

July, 1919, Third Series, No. 571

Disease as Affecting Success in War. C. Burtchaell.—p. 1.
Some Points about Bone Grafts. W. I. de C. Wheeler.—p. 12.

Japan Medical World, Tokyo

Aug. 24, 1919, 297

Mode of Infection of Human Liver Fluke. Muto and Kodama.
Attitude of Liver after Extirpation of Spleen. Nishikawa and Takagi.
Diagnosis of Primary Hepatic Carcinoma. Yamane.
Medical Treatment of Neurasthenia. Shiwoya.

Lancet, London

Sept. 13, 1919, 2, No. 5011

Problem of Hygiene in Egypt. A. Balfour.—p. 465.
*Aortic Disease in Soldiers. T. F. Cotton.—p. 470.
*Increase of Alkalinity of Blood In Shock. B. Moore.—p. 473.
Hot Season in Mesopotamia. F. E. Fremantle.—p. 474.
B. Influenzae "Carriers." S. F. Dudley.—p. 476.
*Etiology of Desert, Septic or Veldt Sore Among European Troops: Its Association with Faucial Diphtheria. C. McK. Craig.—p. 478.
*Compulsory Inoculation Against Spanish Influenza. F. T. Grey.—p. 479.
Arsphenamin. A. R. Fraser.—p. 480.
*Three Unusual Cases of Intestinal Obstruction. W. H. C. Romanis.—p. 481.
Vesical Papilloma Simulating Vesical Tuberculosis. R. Creasy.—p. 482.
Case of Bacillary Dysentery. J. S. K. Boyd.—p. 482.

Aortic Disease in Soldiers.—Cotton has analyzed the case histories of fifty soldiers with signs of aortic insufficiency. The points which Cotton makes are these: Aortic disease is compatible with good exercise tolerance; when there is an equal degree of distress after effort the increase in pulse rate is the same in patients with slight aortic incompetence, in aortic disease with free regurgitation where there is no venous congestion, and in D. A. H. cases in which there are no signs of structural disease.

Increase of Alkalinity of Blood in Shock.—Moore claims that the outlook on the chemical conditions in shock is all wrong, and this is why the invariably underlying presence of "acidosis," to which at first much attention was given, became later neglected. All cases of serious secondary shock show so-called "acidosis," but this acidosis is not "acidosis," it is "alkalosis." So all the attempts of physiologists to mimic it have been abortive. When the pressure of free carbonic acid in the blood is decreased then alkalinity rises and kidneys and tissue cells remove alkali from circulation. It is for this reason that the circulating bicarbonate decreases, and so lowered titration figures are obtained, but the blood is more alkaline. A fall in bicarbonate reserve to one-third of normal can be caused by a small fall in pressure of carbon dioxid and accompanying increase in alkalinity. When primary shock occurs from sudden heart failure, from emotional causes, hemorrhage, pain, or some such stimulus, there is cerebral anemia and unconsciousness. There is a general cessation of metabolic activity at first and a shutdown later to about one third of the normal rate. If there be a closure down in the tissues to one third, what must happen if the lungs go on working at their normal rate or even at one half their normal rate? An excess of carbon dioxid over that produced must be removed in the lungs and the blood go alkaline, and this is what occurs in secondary shock. During the period of fainting both heart and respiration are held in abeyance, the heart perhaps more than the respiration, and there is a venous condition which favors recovery, but later there is a condition in which respiration exceeds circulation and the blood becomes more alkaline and carries shock to the nerve centers and heart. If as a result of a primary shock the circulation is only working at one third its usual speed, and the respiration is going on at the usual rate, the amount of carbon dioxid produced will only be one third of the normal, while elimination proceeds at normal rate. The result must be that the alkalinity of the blood increases, and any such increase leads to heart failure. Hyperpnea need not necessarily be an antecedent factor to ditsons, such as toxic products from wounds and muscle surgical shock. In the main, the condition depends on relative rates of circulation and respiration, although other coninjury and fatigue of nerve centers, undoubtedly play a part.

Etiology of Veldt Sore.—During the Egyptian and Palestine campaigns chronic sores, very resistant to local treatment, on uncovered parts, became a great scourge, especially among mounted units. Craig investigated these lesions in 197 cases. The micro-organisms constantly present in the cultures were: (1) staphylococci (*S. albus*), rarely *S. aureus* or *S. citreus;* (2) diphtheroid bacilli, of two morphologic types: (*a*) A small straight bacillus, staining uniformly with methylene blue, gram-positive but decolorizing with ease, showing no polar differentiation with Neisser's stain. Usually these small forms were present in moderate number and lay parallel in pairs. (*b*) Forms morphologically identical with the true Klebs-Loeffler bacillus. Craig believes that type (*a*) is an immature form of (*b*). Inoculation experiments showed that the small form was equally as toxic as the large form and developed into the latter. One or other of these types was present in 129 out of 197 sores examined, 67.5 per cent. During the period of investigation diphtheria both of throat and nose had been prevalent among the troops. The evidence Craig collected at that time showed that there is a close correlation between the incidence of faucial diphtheria and the occurrence of the "desert" sore, the causal agent in each case being the true Klebs-Loeffler bacillus.

Inoculation Against Spanish Influenza.—Grey's experience in the South Sea islands impressed him with the value of antipneumostreptococcal inoculation as a prophylactic against Spanish influenza. A full dose of the vaccine used by Grey contained 125 millions of *Micrococcus catarrhalis*, 90 millions each of pneumococci, streptococci and a gram-positive diplococcus. Experience showed Pfeiffer's bacillus to be unnecessary as a constituent of a vaccine directed against this epidemic, and in view also of the risk of a negative phase, Grey thinks it is cleary unwise to use it in any community where the epidemic is already well under way. Grey gives a full dose (50 millions each pneumococci and streptococci) every five or six weeks, and never gets more than the mildest reaction.

Cases of Intestinal Obstruction.—Romanis cites two cases in which there was enormous distention of the cecum, and it was gangrenous, due to obstruction from cancer in one case and an impacted gallstone in the other. In a third case he removed 14 feet of ileum which had become gangrenous from strangulation in a small hole in the lower part of the mesentery. The patient made an uninterrupted recovery, and after the first week rapidly put on weight until in four weeks he was heavier than before the operation. At first there were six or seven loose motions daily, but when seen four months after the resection, he was having two soft motions daily and doing his full day's work with ease.

Sept. 20, 1919, 2, No. 5012

Problem of Hygiene in Egypt. A. Balfour.—p. 507.
*Hyperadrenalism: Its Influence in Producing Congenital Pyloric Hypertrophy and Subsequent Obstruction. G. R. Pirie.—p. 513.
*Congenital Hypertrophic Stenosis of Pylorus: Diagnosis and Treatment. H. T. Gray, and G. R. Pirie.—p. 515.
Further Experiences in Colony Treatment and After Care. G. S. Woodhead and P. C. Varrier-Jones.—p. 526.
Treatment of Septic Wounds by Ionization (Chlorin). F. W. B. Young.—p. 529.
*Retroversion of Gravid Uterus. R. B. Eccles.—p. 530.
Spontaneous Cure of Strangulated Inguinal Hernia. W. F. Stiell.—p. 530.

Hyperadrenalism as a Cause of Pyloric Stenosis.—Pirie suggests that the spasm inducing hypertrophy of the pylorus is primarily due to hyperadrenalism before birth, and that other subsidiary postnatal causes determine the persistence or recurrence of the spasm. This condition is due to a lack of balance between the secretions of the various endocrinic organs in the process of their development and involution, which may result either in a relative or an absolute hyperadrenalism. The amount of hypertrophy present at birth is insufficient, except in rare instances, to cause symptoms of obstruction. This is clearly evident from the clinical history of the great majority of cases. But there are certain conditions which will cause spasm after birth sufficient to complete the obstruction in an already stenosed orifice. This combination determines the onset and severity of the symptoms. That some of these patients recover without surgical

intervention is due to the fact that the subsidiary conditions are amenable to palliative treatment, and are of greater moment in producing obstruction by added spasm than the congenital stenosis itself. And there is sufficient evidence to justify the opinion that the two chief contributory causes of spasm, phimosis and secretory inhibition, are directly associated with the congenital hypertrophy. In cases of true congenital stenosis circumcision without any other form of treatment has relieved the symptoms immediately for varying periods of time. As to the effect on the stenosed pyloric orifice of changes in the stomach itself: Any local irritative conditions or inflammatory changes will produce swelling of the mucosa. In many of the cases, perhaps all, there is some change of the nature produced by the undue retention and, thus, fermentation of food. Ordinarily these changes would not cause obstruction, but added to congenital pyloric stenosis, they hasten the formation of the vicious circle, and the perpetuation of the obstruction is due to the more rapid secretory arrest. It is also likely that phimosis, while in itself an important cause of spasm, hastens the appearances of symptoms of obstruction in the same way.

Medical and Surgical Treatment of Hypertrophic Stenosis of Pylorus.—When surgical interference is necessary in these cases, Gray and Pirie advocate Rammstedt's operation: In their opinion, it will, in the near future, take the place of every other surgical method devised for the cure of hypertrophic stenosis of the pylorus. In all other cases palliative treatment should first be adopted as follows: (1) peptonized milk in appropriate quantities; (2) gastric lavage; (3) circumcision; (4) subcutaneous infusion of physiologic sodium chlorid solution and 2 per cent. glucose, when necessary; and possibly (5) administration of chloral hydrate. If there is no relief of symptoms in forty-eight hours, operation should be performed without delay. In the majority of cases palliative treatment is to be persevered with for from ten to twelve days. Failure to improve after this point constitutes an indication for operation in boys, but not necessarily in girls.

Retroversion of Gravid Uterus.—In this case Eccles replaced the uterus by the knee elbow position and then introduced a Smith-Hodge pessary to keep the uterus anteverted. There was complete atony of the bladder, and the catheter was passed every six hours for eight days. The patient made an excellent recovery. At the end of the fifth month of pregnancy Eccles removed the pessary. Four months afterward the patient gave birth to a fine, healthy male child, the labor being quite normal.

Archives de Médecine des Enfants, Paris

September, 1919, 22, No. 9

*Normal Weight and Height of Schoolchildren. P. Puig y Roig.—p. 449.
*Cure of Pertussis. J. Camescasse.—p. 466.
*Thyroid Fever. Léopold-Lévi.—p. 474.
*Urticaria and Antianaphylaxis. Jehrain.—p. 481.
*Congenital Stenosis of the Esophagus. J. Comby.—p. 485.

Normal Weight and Stature of Children.—Puig has been investigating conditions in Spain in this line, and has arranged his work for comparison with similar data compiled in other countries. His investigations included two groups of 2,229 and 1,845 children in the Barcelona district. His tables confirm the findings elsewhere that girls weigh more than boys at a certain age but after 15 the boys rapidly gain the supremacy. The peculiar feature about his statistics is that this superiority in weight and height begins much earlier and lasts later than in other countries. It is apparent as early as the fifth year, and continues to increase to a difference of 7 kg. in weight in favor of the girls at 14, and of 4.66 cm. of superior height. At 13 the girls were 6.4 cm. taller than the boys. This difference between the sexes was noted in the Boston statistics only from 11 to 14 and never surpassed 1.9 cm. (Bowditch); in Germany from 12 to 14, with a maximum of 4.1 cm. Quetrelet's table of figures, from Brussels, is the only one in which the boys surpassed girls in height constantly and at all ages.

Importance of Change of Air in Treatment of Whooping-Cough.—Camescasse asserts that—in his experience at least—all the so-called children's diseases run a milder course in the country than in the city. He has also found that a complete change of air not only attenuates but usually cures completely all cases of whooping-cough. It is necessary, however, for the change of air to come at about the fifteenth day for it to be effectual. Later than this no influence from it is apparent, and earlier than this it does not modify the disease, but a further change of air about the fifteenth day then will prove effectual as usual. He urges that provision be made in the country to receive whooping-cough children from the city sent out at about the fifteenth day of the disease. He proposes for Paris that two sahatoriums should be established for the purpose at about a two-hours auto drive from the city. The number of inmates may vary from zero to a thousand in different weeks, and there would be many advantages in providing accommodations for the mothers to accompany some of the children. When the number of admissions is low, the convalescents might be given the privilege of a longer stay in the country. He adds that Paris records 500 deaths from whooping-cough annually, and that most of these children might be saved if provisions of this kind were made for them.

Cryptogenous Fever from Thyroid Instability.—This article was summarized Aug. 16, 1919, p. 562, when it appeared elsewhere.

Urticaria Treated by Antianaphylaxis.—Summarized on p. 562.

Congenital Stenosis of the Esophagus.—Comby reviews Brennemann's and other recent publications on this subject, and remarks that congenital atresia of the esophagus seems to be frequent in America. He does not agree with those who think that there is any chance for the survival of these children. Even when successful, operative correction of the anomaly would be so difficult and complicated, he says, that the outlook is hopeless—*Il faut accepter l'intivitable.*

Bulletins de la Société Médicale des Hôpitaux, Paris

July 18, 1919, 43, No. 25

Paraplegia Following Mumps. L. Lortat-Jacob and G. L. Hallez.—p. 719.
Malignant Influenza with Necrosis of Lung. G. Caussade and A. Tardieu.—p. 723.
Radiology of the Lungs and Heart in the Gassed. J. Parisot and P. Darbois.—p. 730.
Isolated Paralysis of the Serratus Magnus. G. Guillain and E. Libert.—p. 734.

Journal de Médecine de Bordeaux

Aug. 25, 1919, 49, No. 16

*Prolapse of Gravid Uterus. J. Andérodias.—p. 327.
Syphilis in Madagascar. H. S. Morin.—p. 331.
*Prolapse of the Uterus in the Elderly. A. Venot.—p. 337.
Deep Lipoma of the Arm. R. Villar.—p. 338.
Does Injectable Turpentine Aid in Prophylaxis of Influenza? Roumailhac.—p. 339.

Prolapse of Gravid Uterus.—Andérodias reports the case of a woman of 31 who for ten years, from immediately after her first pregnancy, had had the cervix of the uterus protrude from the vulva. At the age of 24, a malformed infant was born. At 27 a laparotomy with hysteropexy only transiently relieved the prolapse. The protruding cervix was 8 or 10 cm. long and during her third pregnancy it became ulcerated. In four similar cases in his service the pregnancy went to term in all and delivery was spontaneous. The period of dilatation was longer than usual, and laceration was common. In his four cases labor lasted from four and a half to fifteen hours, and there was no morbidity.

Wire Treatment of Genital Prolapse in Elderly Women.—Venot refers to cases in which the degenerated tissues do not permit effectual reconstruction of the pelvic floor. He has applied in such cases in elderly women a method of sustaining the walls of the vagina by *cerclage* with a silver wire. With a curved needle he passes a wire around the lower end of the vagina and knots it to make a ring preventing further egress of the genitals. The vaginal wall is first separated from the urethra and loosened up through a small transverse incision in the urethrovaginal wall and a second incision in the posterior vaginal wall, these incisions materially facilitating the passage of the curved needle. The knot of the wire is at the anterior incision where the ends are tied

over the handle of the Reverdin needle, to ward off danger of drawing the wire too tight, and the knot is pushed in to one side. The wire can be easily removed at need.

Paris Médical

Aug. 23, 1919, 9, No. 34

*Delirium and Psychoses with Influenza. A. Porot and A. Hesnard. —p. 141.
Action of Mustard Gas on Upper Air Passages. R. Moreaux.—p. 146.
*Retention of Urine from Atony. Uteau.—p. 150.

Delirium and Psychoses with Influenza.—Porot and Hesnard insist that the delirium and psychoses accompanying or following influenza are the most typical example and synthetic illustration of this form of acute infectious mental pathology which requires general care rather than special institutional care, the clinician rather than the alienist. There is no essential difference between the brief delirium and the psychoses which may drag along for weeks or months on account of some predisposition or reenforcement from secondary factors. The delirium with influenza may not accompany the fever but develop later when the lack of nourishing food, the secondary autointoxication and the exhaustion from the disease combine to sap the vitality, especially after alcoholic or other excess and intoxication. The initial disorder is connected with an organic condition, and this latter is what determines the indications for therapeutics.

Retention of Urine from Atony.—Uteau eliminated all the usual causes for the retention of urine in a group of cases in which the only objective sign was the insufficiency of the bladder musculature. Whether this is cause or effect is still a question. It is possible that in certain circumstances emotional inhibition might breed a habit. The prognosis is favorable; a cure is generally realized in a few days under the influence of systematic catheterization and silver applications. A special feature of these cases is that the residual urine fluctuates in amount from day to day. It is generally clear, and the sphincter tonus seems to be normal.

Presse Médicale, Paris

Aug. 25, 1919, 27, No. 47

*Significance of the Thrill. L. Bérard and C. Dunet.—p. 469.
Heliotherapy for Mediastinal Glands. A. Dufourt.—p. 470.
Reconstruction of the Angle of the Lips. L. Imbert.—p. 472.
Access to the Inferior Maxillary Nerve. E. Gasgard.—p. 472.

Significance of the Thrill.—Bérard and Dunet present evidence to demonstrate that the thrill occurs when a blood wave is passing through an abnormally narrow canal or opening between two cavities each of which has a different pressure. The thrill is not exclusively a mechanical phenomenon; it is also a vital phenomenon in that the active contractility of the coats of the arteries is a factor. The thrill with an arteriovenous aneurysm is stable and is always accompanied by a continuous murmur, reenforced during systoles. The thrill of arterial origin alone is variable. The disappearance of the compressor element or of the spastic element is responsible for it. There may with it also be a murmur with systolic reenforcement.

Progrès Médical, Paris

Aug. 2, 1919, 34, No. 31

*Typhoid and Paratyphoid Infections. C. Gautier and R. J. Weissenbach.—p. 301.
Spa Treatment of Anemia, Especially of Malarial Origin. P. Maurel. —p. 305.
Coagulation of Lumbar Puncture Fluid in Meningitis from Trauma of Frontal Sinus. H. Roger and G. Giraud.—p. 306.

Typhoid and Paratyphoid Infections.—This article is entitled "Lessons from the War." It says that nothing seems to have been learned during the war in regard to treatment of typhoid and paratyphoid except that in paratyphoid, subcutaneous injections of a specific vaccine seem to have materially hastened the cure, and reduced the death rate from 7.78 per cent. in the nontreated to 3.4 per cent. in the treated (1,119 cases). Lenglet claims that this vaccine therapy seems to prevent relapses and reduce complications. Weil has also reported excellent results with it in suppurating bone lesions as complications of typhoid and paratyphoid.

Revue Neurologique, Paris

April, 1919, 26, No. 4

*Autonomy of the Completely Divided Spinal Cord. G. Marinesco (Bucharest).—p. 257.
*Familial Atrophy of the Optic Nerve with Tremor and Mental Impairment. S. Imamura and K. Ichikawa (Kioto).—p. 277.
*Tendon Transplantation to Correct Traumatic Radial Paralysis. J. Jarkowski and H.-P. Achard.—p. 283.
*Cataphrenia: Curable Dementia. A. Austregesilo (Rio de Janeiro). —p. 288.

Autonomy of Completely Divided Spinal Cord.—Marinesco declares that the war experiences with completely severed spinal cords seem to have completely demolished Bastian's theory that reflex functioning is practically abolished after the cord has been severed in the lower part of the cervical or upper part of the dorsal region. This is true only of a brief primary period. Marinesco and others have demonstrated that the cord recuperates an actual autonomy. This does not seem to be the resumption of its former activity but a new activity of its own, which reproduces only rudimentarily the activity of the divided spinal cord in the dog. It is an inferior kind of activity which differs from normal activity and from that of decerebrated animals and of pathologic obstruction of the spinal cord-cortex route in man. There is no doubt that the fibers of the spinal cord can regenerate, but this anatomic regeneration is not systematized. It does not lead to reconstruction of nerve routes which would ensure the resumption of useful transmissions. Regeneration seems to be possible not only of the roots but of the white substance, but all the experiments and experiences to date demonstrate that the regeneration does not permit resumption of the old functioning. The activity of the spinal cord after complete separation from the cerebellum and brain is a new activity, pertaining exclusively to the spinal cord itself. The innervation of the extensors of the legs depends on the supramedullary centers, and these extensors do not regain their reflex activity. All the activity of the "spinal man" is in the sphere of the flexors. The flexors regain their tonus and function in a synergic manner, but their temperature is below normal, and electric tests show a different response from normal. The assumption seems plausible therefore that there is an autonomous activity of the spinal cord. It is manifested by defensive movements, but these defensive movements cannot be identified with the reflex defensive movements of the decapitated frog, as they are purposeless and could not serve in any way for actual defense reflexes.

Familial Atrophy of the Optic Nerve with Tremor.—The parents were healthy and also four of the six children, but one brother and sister developed visual disturbances suddenly at puberty and they rapidly progressed. The symptoms closely resemble those described by Leber as characteristic of hereditary atrophy of the optic nerve. There are also certain other nervous symptoms, incoordination in the movements of the eyes and asymmetry in the innervation of the face in the young man. In the young woman there is tremor besides, including even the trunk when seated, and all the finer coordinated movements are slow and awkward but the gait and reflexes seem normal. There is pronounced mental impairment in this case. The patients had been apparently normal until puberty. The cases resemble some reported by Behr; his were all in boys, and evidently congenital.

Tendon Transplantation for Radial Paralysis.—The success in the case of which an illustrated description is given justifies, it is stated, tendon transplantation as a routine measure for peripheral paralysis. It gives as certain and as prompt functional results as can be obtained with orthopedic apparatus, to say the least.

Cataphrenia.—Austregesilo's article was reviewed Jan. 11, 1919, p. 154, when it appeared elsewhere.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Aug. 14, 1919, 49, No. 32

Technic for Administration of Digitalis Preparations. M. Cloetta. —p. 1193.
*Influence of Influenza on Pregnancy and the Puerperium. E. Geymüller.—p. 1198.
Specific Gynecologic Medication. A. Nordmann.—p. 1208.
The Factory Physician. Koller.—p. 1214; Id. A. Ziegler.—p. 1216.

Influenza in the Pregnant and Parturient.—Geymüller's experience with influenza in forty-two pregnant women and in eighteen parturients confirms the frequently disastrous influence of these conditions on the course of influenza. The proportion of pneumonia cases was larger, and half of the pneumonia cases terminated fatally. Spontaneous abortion was frequent, probably the result of the excessive amount of carbon dioxid in the blood. The delivery in turn has an unfavorable influence on the pneumonia. After the childbirth, an attack of influenza offers no special danger, the involution processes not being appreciably modified by it.

Gazzetta degli Ospedali e delle Cliniche, Milan

Aug. 10, 1919, 40, No. 64

The Campaign against Cholera in the Troops on the Austrian Front. G. Massarotti.—p. 657.

Aug. 17, 1919, 40, No. 66

*Importance of Weather Conditions as Influencing Development of Acute Noncontagious Diseases. A. Campani.—p. 685.

Meteorologic Conditions as Influencing Certain Diseases.—Campani accepts the term "cyclonosis" to express the three groups of symptoms which seem to have some connection with the weather. The first group includes headache, sensations of heat, irritability and tendency to epistaxis and to hemoptysis; the second group includes intestinal catarrhal disturbances, sleeplessness and loss of appetite, while the third group comprises rheumatoid pains, painful joint disturbances, pains in old scars, etc. He compares in eleven tables the morbidity and the meteorologic conditions during a recent nearly two year period at Verona in northern Italy, his data including 24,528 cases of recorded disease exclusive of acute contagious diseases. The morbidity was least in the windy periods, especially in winter, while the highest morbidity accompanied periods of cloudy skies. As a general rule, he says, the best conditions for health seem to be during or immediately after the great atmospheric convulsions and the fair weather that follows them. The morbidity is highest during the periods of stagnation preceding storms, with a constant temperature, generally rather above the mean, the sky cloudy, and only weak atmospheric currents. The greater the fluctuations in the temperature of the twenty-four hours, the less the morbidity, and the less the fluctuations the higher the morbidity, especially when the humidity is high. The northwest winds in winter and the southwest in summer seemed to be the most favorable for the health in general. The influence of the weather on the development of plants and crops is so evident that he is convinced that physicians may well study the subject in the interests of patients. It might be well to add study of the appearance of sun spots, the variation in electric conditions and even the phases of the moon as these may affect the action of certain ferments.

Policlinico, Rome

July 13, 1919, 26, No. 28

*Improved Technic for Romanowsky Stain. R. Romanese.—p. 873.
*Stain for Tubercle Bacilli. A. Gasbarrini.—p. 874.
Chyliform Ascites. P. Sisto.—p. 878.
Milk-Like Effusions. P. Bidis.—p. 881.
Primary Liver Abscesses. E. Caglio.—p. 883.

July, 1919, 26, Medical Section No. 7

Dissociated Paralysis of Peripheral Nerves after War Wounds. G. Mingazzini and G. Fumarola.—p. 257. Cont'n.
War Motor Psychoneuroses. G. Pellacani.—p. 275.
Tonic Unilateral Spasm of Eyelids. A. Mendicini.—p. 286.

The Romanowsky Stain.—Romanese has worked out, he says, a simple and reliable substitute for the Giemsa method. The results seem to be the same with it as with the original Giemsa fluid, while the ingredients are inexpensive and always at hand. He dissolves 0.75 gm. methylene blue in 50 c.c. of 95 per cent. alcohol and 50 c.c. of glycerin, and adds 3 c.c. of a 10 per cent. solution of sodium carbonate in distilled water, and boils for fifteen minutes. Then he adds 35 c.c. of a 1 per cent. alcoholic solution of eosin and boils fifteen minutes. It is then removed from the fire and alcohol is added to bring the total amount to 100 c.c. It is then set aside, covered closely, for a week.

Stain for Tubercle Bacilli.—Gasbarrini has long contended that the acids used to decolor the bacilli with the usual technic are too powerful and detract from the effect. To avoid this he uses methylene blue in excess in a solution of 40 c.c. lactic acid in 160 c.c. distilled water, and adds to this at the time of using four parts of alcohol (95 degrees). This both decolors and recolors at the same time, with the finest and most constant results. It has shown up tubercle bacilli in sputum, urine and stools when the Ziehl gave negative findings, and the accuracy of the lactic acid method was confirmed by the course of the cases. The nonacid resisting bacilli can be differentiated more readily, and the whole procedure takes less time than the ordinary technic.

Riforma Medica, Naples

Aug. 9, 1919, 35, No. 32

*Action of the Meningococcus on the Eye. L. Guglianetti.—p. 662.
*Laboratory Tests in Typhoid. C. Pezzi.—p. 665.
Malaria in Istria. M. Gioseffi.—p. 671.
Tumors in the Esophagus. G. Molinari.—p. 676.

Action of the Meningococcus on the Eye.—Guglianetti here reports his conclusions from experimental research on the pathogenic action of the meningococcus on the various tissues of the rabbit eye. The meningococcus induced inflammatory processes when injected into or below the different tissues, with the exception of the conjunctiva. There was no reaction by the conjunctiva not even to subconjunctival injection of these germs.

Laboratory Diagnosis of Typhoid and Paratyphoid.—Pezzi reiterates that beef gall with 2 per cent. glucose is an efficient means for distinguishing between cultures from typhoid and paratyphoid infections. Each is unmistakable.

Rivista Critica di Clinica Medica, Florence

May 31, 1919, 20, No. 22

To Ensure Precision in Estimating Time with Multiple Heart and Pulse Tracings. G. Castelli.—p. 253.
The Diet in Fever. Cesare Capezzuoli.—p. 253. Cont'n.

June 14, 1919, 20, No. 24

By-Effects with Artificial Pneumothorax. C. L. Rusca.—p. 277.
Present Status of Diabetes. Fornaseri.—p. 280. Conc'n.

July 12, 1919, 20, No. 28

*Hemolytic Splenomegaly. L. Castaldi.—p. 325. Com'd in No. 27, p. 313.

Hemolytic Splenomegaly.—Castaldi reviews the few cases on record of what he calls Banti's hemolytic splenomegaly, and describes a case personally observed in a man of 27. There was no pain and but little jaundice accompanying the intense anemia. The blood count showed 2,105,000 red and 6,305 white corpuscles, hemoglobin 45 per cent. and the color index 1.07, with 53.5 per cent. polynuclears; 0.5 per cent. eosinophils and basophils 4 per cent.; large mononuclears 4 per cent., and 41.5 per cent. lymphocytes; no myelocytes, and no nucleated erythrocytes. The case thus fits into the frame of Banti's ahemopoietic hemolytic splenomegaly. In the nine similar cases on record the spleen was removed in seven and with excellent results in every instance. As no improvement was realized under medical measures, Castaldi advised splenectomy but the patient refused this and roentgen treatment was applied, with brilliant success. Ten exposures of ten minutes each were given in the course of forty-five days and the outline of the spleen subsided from 21 by 16 to 12 by 11.5, while the hemoglobin ran up to 80 and the erythrocytes to 5,600,000 and the weight increased by nearly 5 kg. The patient would not wait for further treatment but has kept well during the four years since, including nearly three years of military service. The case teaches the necessity for a trial of thorough roentgen treatment before resorting to splenectomy in such cases.

Annaes Paulistas de Med. e Cirurgia, S. Paulo, Brazil

April, 1919, 10, No. 4

*Septicemias. A. G. Guimarães.—p. 73.
Case of Hydramnios with Twenty Liters of Fluid at Seventh Month of Pregnancy. Marinho de Azevedo.—p. 88.

Septicemias.—Guimarães expatiates on the advantages of taking a culture from the blood in every febrile state, no matter how mild it may seem. The results should not be

classed as negative until the cultures have been taken at different periods in the fever. It has been his experience that infection occurs mostly by way of the veins, and that the pus cocci are most frequently to be incriminated, and that the prognosis with them is almost always fatal in adults, and is grave in children. There are always symptoms from the septicemia, but they vary widely in different cases. The staphylococcus may proliferate in bile. Septicemia with anaerobes is rare. In the majority of cases the pneumococcus is found in the blood after it has localized in the lung, but in one of his cases the pneumococcus was isolated from the blood before it had localized anywhere. In acute cases of septicemia, if an abscess forms, the prognosis becomes more favorable.

Archivos Españoles de Pediatría, Madrid

June, 1919, 3, No. 6

*Fractures of the Femur. F. Criado Aguilar.—p. 321.
*Weight and Stature of Schoolchildren in Spain. P. Puig y Roig.—p. 327.
Albumin Milk in Infant Feeding. A. Muñoyerro and Bravo Frias.—p. 354.

Treatment of Fracture of the Femur.—Criado declares that the treatment of fracture of the femur is still open to improvement. The current methods of continuous extension are not based on correct principles although they may give more or less satisfactory results, but he claims that the plaster bandage he uses is irreproachably efficient and can be absolutely depended on. He gives minute directions for applying it without the slightest compression at any point. He first applies the bandage to the pelvis, winding it to cover perineum and anus, leaving only the genitals exposed. Then the leg below the knee is wound in the same way, including the foot, the patient lying supine. No attention is paid to the fractured region while the pelvis and leg are thus being wound, except to keep the thigh in a generally good position. When the leg and pelvis are thus wound they are held firm by assistants while he reduces the fracture, watching for the disappearance of the deformity of the muscle, the good position of the foot, and the normal length of the limb, comparing it with the sound mate. When the femur is thus in normal position, he draws a horizontal line on the pelvic bandage, at about the anterior superior iliac spine, and another at the middle of the bandage on the leg, and measures the space between, cutting a piece of cardboard exactly the length of this space. This cardboard measure is entrusted to an assistant, possibly a member of the family, and the thigh is then wound with the bandage, measuring with the cardboard constantly to keep the two lines the same distance apart so that the limb will retain its normal length. The thigh and knee are wrapped in cotton and the plaster bandage is applied over this, smearing more plaster on the pelvis and leg bandages to make the whole solid. When the plaster hardens, he cuts out an opening for the anus and for the heel. The plaster bandage holds the whole limb in its normal position and length by the extension and counterextension from the plaster hold on the dorsum of the foot and the perineum, thus preventing any contraction of muscles. The patient can be up and about with this bandage if care is taken not to fall.

Weight of Schoolchildren in Spain.—Reviewed above as published elsewhere.

Brazil-Medico, Rio de Janeiro

July 12, 1919, 33, No. 28

The Balantidium Coli in Persons not Presenting Signs of Dysentery. C. F. Pinto.—p. 217.
*Hexamethylenamin by the Vein in Spirochetal Jaundice. A. da Matta.—p. 218.

Hexamethylenamin by the Vein in Spirochetal Jaundice.—A similar article by da Matta was summarized in these columns, May 24, 1919, p. 1580.

Gaceta Médica de Caracas, Venezuela

June 30, 1919, 26, No. 12

*Ethnic Enlightenment of America. C. E. Paz Soldán.—p. 125.
Etiology and Pathogenesis of Cholecystitis and Cholelithiasis. Rivas Morales.—p. 127.

The Eugenization of America.—Paz Soldán reiterates that *gobernar es sanear, es eugenizar*, and that America calls for eugenization and biosocial progress. He insists that the scientific societies, especially the national academy of medicine in the different countries, should inaugurate a campaign to enlighten the public in regard to racial and eugenic duties as a new and exalted form of patriotism. He appealed to the Academia de Medicina at Caracas to consider taking the lead in this work. The Academia warmly endorsed this plan of ethnic enlightenment as the synthesis of a vast program of life and prosperity for the human being on this western continent, but it declined to take the lead in the movement as it was not in a position and did not have enough prestige to inaugurate an important crusade of the kind, but it promised to serve valiantly and devotedly in the ranks.

Medicina Ibera, Madrid

July 5, 1919, 2, No. 87

Criticism of Modern Methods for Extraction of Cataract. I. Barraquer.—p. 1.
*Early Diagnosis and Operative Treatment of Cerebellopontine Lesions. W. López Alba and D. García Hormaeche.—p. 5.

July 12, 1919, 2, No. 88

*Electrocoagulation of Bladder Tumors. F. Miraved.—p. 17.
*Radium in Dermatology. L. Rodríguez and F. Sierra.—p. 21.

Cerebellopontine Lesions.—López and García remark that they could find only one article on this subject credited to a Spanish author among the 300 articles they consulted. They have encountered at the public hospital of Bilbao four cases of lesions pressing on the cerebellopontine tissues. The patients were three men between 29 and 32 and one woman of 24. The disturbances may be ascribed to trigeminal neuralgia at first, and it is important to examine with minute care the functions of the fifth, sixth, seventh and eighth nerves. In their cases the evacuation of the pus in the one case of cerebellopontine abscess was followed by a complete cure, but two other patients given operative treatment succumbed to respiratory paralysis. Treatment for syphilis had been pushed in some of the cases but no benefit was apparent. In one of the operative cases a cerebellopontine extension of a tumor in the left half of the cerebellum had been assumed, but the space was found empty. Hemorrhage from the lateral sinus compelled tamponing and this entailed a destructive process with hemiplegia and the patient died six weeks later; no necropsy.

Electrocoagulation of Bladder Tumors.—Miraved reports favorable experiences with electrocoagulation of bladder tumors, and commends it as simple and practical. As it does not require general anesthesia, the patient can live his usual life throughout the course. A single application usually cures completely the smaller tumors. The principal advantage in cancer cases is that it checks the tendency to hemorrhage, but he has had a number of cases in which the malignant tumors retrogressed to a certain extent, and in one case to a complete clinical cure.

Radium in Dermatology.—Rodriguez has applied radium treatment in 122 cases of cancer of the skin during the last ten years, and 119 of the patients were radically cured. All are free from recurrences to date. The three failures were in patients who had been previously treated vigorously with the roentgen rays; one had an ulcerating roentgen dermatitis. He has applied radium in 147 cases of lupus and many of these patients with lupus of thirty or forty years' standing were cured. A preliminary cureting seemed to promote the action of the radium. Among other lesions that subsided under radium were leukoplasia and lichen planus of the tongue, and he regards treatment of these as very important as they predispose to malignant disease.

Prensa Médica Argentina, Buenos Aires

June 30, 1919, 6, No. 2

*Tardy Inherited Syphilis. M. R. Castex and N. D. Rosso.—p. 25.
Craniectomy for Bullet Wound. R. V. Hernández.—p. 27.
*Localizations in the Brain by Light of Biologic Psychology. E. Mouchet.—p. 28.
*Study of Pulmonary Tuberculosis as Part of Curriculum. A. Cetrángolo.—p. 30.

Tardy Inherited Syphilis and Abdominal Disease.—Castex and Rosso give minute details of nine cases with numerous roentgenograms which confirm that various gastro-intestinal affections may be traced to inherited syphilis. They say that such cases are comparatively numerous, and a frequent type is the gastroduodenal ulcer. A circumscribed perivisceritis, causing pain in the epigastrium, is also relatively frequent. Chronic inflammatory processes in and around the sigmoid and the rectum may be a tardy manifestation of inherited syphilis. Chronic peritonitis with effusion is sometimes traceable to it also, but when this is the case other serous membranes are usually involved and some of the viscera may be diseased. It may be impossible to differentiate these tardy syphilitic lesions from tuberculous changes, but the improvement under tentative treatment as for syphilis clears up the case. Some of their cases presented Lane's kink and Jackson's membrane as syphilitic lesions of this category. Lane called attention to the benefit from calomel in cases of kink, but he ascribed it to the action on the liver.

Localization in the Brain by the Light of Biologic Psychology.—Mouchet is professor of abnormal psychology at the University of La Plata, and he remarks in the course of this study of the localizations in the brain that we are less certain about them now than we were a few years ago. Instead of a lot of pigeon-holes for different functions, psychology is progressing toward acceptance of the great unity of our mental life although recognizing zones of special functioning. He insists that we must not depreciate the importance of the white substance of the brain; injury of the former may modify functioning as seriously as injuries of the cortex. He explains how the blood not only nourishes and warms the brain and maintains the pressure, but it also brings hormones to act on it. The hormones are likely to be very important for the functioning of the brain cells. When the stimuli from the hormones predominate, our action is instinctive; when the stimuli from the nerves predominate, our action is under the control of the mind, but the brain is always under the influence of both. When an action is repeated through generations, it comes to be performed with less and less attention from the senses. The hormones alone are able to accomplish it. He asserts that the hormones poured out into the blood "are responsible for the states we call love, desire, appetite, etc. If we remove the glands that secrete the hormones involved, the instinct is lost, and the mental state we call eunuchism is entailed. This hormonal basis underlies the emotions and the intelligence which orient and civilize instinct. Each one of us is kindly or malicious, an imbecile or genius, brave or cowardly according to his entrails and his humors. The hormones are the primary cause of instinct, the voice of our ancestors; our eyes and ears direct and civilize the hormonal action." The hormones act on the brain throughout. The mental states which are the result of their stimulating action cannot be localized at any special point but must involve the whole of the brain mass. The point where a nerve starts, and the region immediately around it, naturally become more or less specialized in the direction of the movements of the muscle innervated by that special nerve, or in the sensations transmitted to that point by different nerve impulses. But with hormones, there can be none of this isolated, partial action. "This explains the unity of our world, of the whole of the workings of the psyche. It is the unity of the Ego in opposition to the unity of the external world, the Non-Ego."

Study of Pulmonary Tuberculosis.—Cetringolo pleads for a chair of phthisiology in the medical schools.

June 30, 1919, 6, No. 3

*Syphilis. J. Palacio.—p. 33.
*Intradermal Tuberculin Injections in Diagnosis and Treatment of Tuberculosis in Children. J. P. Garrahan.—p. 35.
Extensive Colectomy for Cancer: Recovery. N. Tagliavacche.—p. 37.

Syphilis from Clinical Standpoint.—Palacio reiterates that recent research has shown that between latent syphilis and extremely active syphilis there are many grades and phases, and a new field of observation has opened up here, just as we have learned recently to appreciate better the extent of endocrine disturbances. Many of the manifestations, early and tardy, of inherited syphilis have been misinterpreted hitherto, but, on the other hand, it is not right to give mercurial treatment hit or miss. The other children in the family should be examined in dubious cases. The lack of a history of abortions in a family does not exclude syphilis; in some families with a syphilitic taint, fecundation seems to be exceptionally active. The virulence of the taint seems to diminish with the length of the interval since the parental infection. The Bordet-Wassermann test should complete and not be called on to substitute the history of the case and examination of the patient. When a new infection, such as pulmonary tuberculosis, is superposed on an inherited or acquired syphilis, treatment of the latter may modify the soil, reenforce the defensive powers and enable the patient to throw off the superposed infection as the syphilis yields to treatment. This may give the erroneous impression that the specific treatment has cured the superposed infection. A syphilitic lesion in the lung usually locates in the base, and preferably in the middle lobe of the right lung. There is usually a marked tendency to sclerosis, while the general health keeps good. A tuberculous process developing on a syphilitic soil generally displays a fibrous tendency and only examination of the sputum will tell whether a pulmonary affection in a syphilitic is the work of the syphilis or of the tubercle bacillus.

Palacio adds, "When a syphilitic develops cancer (and the majority of cancer cases are syphilitic), if there is not extreme cachexia, mercurial treatment may improve conditions to such an extent that the physician may doubt the diagnosis of cancer." The lesions of syphilis are liable to locate at points where traumatism has reduced the resistance, and this may explain the lack of recuperation or the delay in healing after a trauma. This has been strikingly demonstrated in certain cases of war wounds; the syphilis by rendering the tissues and the vessels in the region abnormally frail and nonresistant, interferes with normal healing. It is possible, he adds, that certain cases of death under chloroform were in persons with inherited syphilis and consequent endocrine anomalies. Specific treatment before the anesthesia and administration of epinephrin might have tided the patient past the danger point, and aided in the healing of the operative wound. Emotional stress or extreme fatigue may rouse a latent syphilis and cause its localization in the nervous system, the initial symptoms of general paresis appearing soon after. If they are not recognized at once and proper treatment instituted, irreparable lesions may soon become installed.

He warns that treatment should be commensurate with the "age" of the special lesion in question, but sclerosis does not retrogress, and the most that can be hoped is to arrest the process. Syphilis, like tuberculosis, may flare up during a pregnancy. Palacio explains reinfection in syphilis as due to invasion of exceptionally virulent germs during a phase of extreme latency of the original syphilis. Syphilitic nephritis is distinguished by unusual amounts of albumin in the urine, and mercurial treatment is directly indicated. The albumin decreases and diuresis increases after one or two injections.

Intradermal Tuberculin Treatment of Children.—Garrahan reviews the experiences with 653 children from 2 to 16 years old given tuberculin intradermally both for diagnosis and in treatment. As a diagnostic test, he found it more reliable than the skin Pirquet test, especially with latent tuberculosis. In case of glandular disease or nodose erythema or suspicion of hypersusceptibility in general, he advises to use only 0.00001 gm. of the tuberculin instead of the usual 0.0001 gm. A positive reaction in an infant is an almost certain sign of active tuberculosis, and a repeated negative reaction in older children almost certainly excludes tuberculosis. The intradermal route for tuberculin treatment of children seems to be absolutely harmless. There do not seem to be any contraindications, and it is not necessary to take the temperature; estimation of the proper dose is a simple matter by the aspect of the local reaction. As to the efficacy of tuberculin treatment, he does not share Combe and Jeanneret's optimism. In

some cases no effect was apparent; in many others it "seemed" to be effectual. He advises it as an adjuvant or when fundamental climatic and hygiene treatment is not available.

Repertorio de Medicina y Cirugía, Bogotá

July, 1919, 19, No. 10

*Proposed Code of Ethics.—p. 507.
*The Epidemic of Whooping-Cough at Cajicá. M. A. Rueda Vargas. —p. 543.
Treatment of Syphilis. M. A. Rueda G.—p. 551. Cont'n.

Proposed Code of Ethics.—This code was drawn up by the Sociedad de Pediatría de Bogotá to be presented at the Fourth National Medical Congress of Colombia to convene in August at Tunja. The code is almost identical with the one adopted in 1918 by the Academia Nacional de Medicina of Venezuela which was very fully described in THE JOURNAL, Sept. 21, 1919, p. 1013. The obligation of physicians to attend their confrères free of charge and without discrimination as to nationality is more explicitly stated in this new code, and a colleague is defined as (1) those who have completed the required course of study; (2) those who have obtained the diploma of physician or surgeon, and (3) those who are dependent in any way on the medical profession. The code continues "The physician should prescribe gratuitously for the colleague's family, that is, for his parents, wife and children provided they do not have a financially independent position. This obligation does not cease with the death of the colleague." It is stated further that at a consultation "no opinions or prognostications should be expressed except as concurred in by the consultants at their conference, and which cannot injure in the slightest the reputation of the attending physician in charge of the case." The hours for day calls are from 8 to 8; for night calls from 8 p. m. to 6 a. m. The Venezuela code made elaborate provisions for a "tribunal of Honor," but there is no reference to anything of the kind in the proposed code. It closes with the suggestion that it is a duty of *compañarismo profesional* to keep a list of clients who elude payment for medical services, so that other physicians in the same locality can be informed. The code further omits the Venezuela clauses saying that the physician should not make an examination of a married woman unless her husband is present or some one appointed by him, and that a general anesthetic should not be given without the presence of at least two physicians. The code reiterates all the Venezuelan denunciations of *industrialismo médico*, of secret division of fees, and of "the preparation, sale, use or promotion of the use of secret medicines."

Whooping Cough.—Rueda reports an epidemic of pertussis of unusual severity, the incubation being only three days at most and the spasmodic cough appearing at the fourth day after the initial symptoms. The paroxysms of coughing recurred five or six times an hour, the child being so exhausted in the interim that it lay inert and did not react to any stimuli. Some of the paroxysms of coughing lasted four minutes, the children becoming cyanotic and various complications developing, including epistaxis, conjunctival hemorrhages, hernia, prolapse of the rectum and bronchopneumonia. The latter always proved fatal in these cases, the paroxysms of coughing keeping up in the pneumonia. One child developed a gangrenous process in the mouth which proved fatal. He describes one case in which an artery in the brain of a child of 2 ruptured during a coughing paroxysm, fifteen days after the first symptoms. In one child of 8 the pneumonia dragged along for six weeks and left a condition strongly suspicious of tuberculosis. No cause for the special gravity of the pertussis could be discovered. Vaccine therapy seemed to have an attenuating influence in some cases, the paroxysms becoming less frequent and less severe thereafter.

Revista Española de Medicina y Cirugía, Barcelona

June, 1919, 2, No. 12

*Implants of Dead Tissues. Soler Julià.—p. 561.
*Transperitoneal Cesarean Section. Ruiz Contreras.—p. 565.
The Medulla Oblongata. J. Vilató.—p. 568. Cont'd in No. 13, p. 647.
*Lessons from Laparotomies. S. Cardenal.—p. 614.
Bronchopulmonary Spirochetosis. Remigio Dargallo.—p. 623.

Grafts of Dead Tissues.—Soler reviews here the work of Sencert and Nageotte as he watched their experimental research in this line and its outcome. It has been repeatedly described in these columns, and the way in which the graft kept in alcohol for a month grows into its new bed. The connective tissue persists, but all the other cells are resorbed and new ones take their place so that the dead tendon, for instance, recovers its vitality. One man, among others, with an ingrafted tendon to remedy an extensive defect had regained the use of hand and fingers and no one would have suspected that his arm had been crippled.

Improved Technic for Transperitoneal Cesarean Section.—Ruiz clamps two forceps on the anterior wall of the fundus of the uterus, about 16 cm. apart, and walls off the rest with napkins. Then he makes a small incision in the center and works through it with his fingers and the handle of the bistoury, separating the fetal membranes from the wall of the uterus. The membranes are not distended as they have ruptured and the fluid has escaped by the natural routes beforehand; he has aided this by having the woman stand up while he lifts with his finger the presenting part of the fetus. Then he fits over the uterus a square of impermeable tissue, about 40 cm. square, cut in the middle so that the edges of the opening thus made can be turned down over the edges of the incision in the uterus, thus covering them completely, and the whole is held in place with forceps. The field of operation is thus completely isolated and all that can be seen is the fetal membranes. These are then incised, the fetus extracted, the square of impermeable tissue removed, and the uterus sutured before the napkins are touched. In conclusion he sutures each of the edges of the lower part of the incision in the parietal peritoneum to each side of the suture in the uterus. This shuts off all communication between the interior of the uterus and the peritoneal cavity, even if the suture should not hold. This suturing does not fasten the uterus firmly to the abdominal wall as a peritoneal ligament soon develops, and this permits ample movement.

Lessons from Laparotomies.—Cardenal mentions among other lessons learned from his 2,100 laparotomies that it is not enough for medical students to study the anatomy of the normal abdomen. They should be given opportunities to study pathologic anatomy. They should never miss an opportunity to see "cases, cases and ever more cases." The peritoneum defends itself better than tissues of the connective-tissue type against mild infection, but when the infection is too strong for it, the invasion proceeds more rapidly and fatally than with any other tissue in the whole organism. Another important element in the pathology of the abdomen is the abundance of nerves throughout the entire area of the visceral peritoneum, ramifications from the solar plexus, intimately connected with the cranial nerves which preside over the respiration and circulation. This makes it imperative to reduce to the minimum all exposures of the peritoneum, and keep the viscera in an isotonic medium throughout any intervention, with the minimum of damage to the delicate endothelial coat of the peritoneum as on this depends its resisting power and its wonderful agglutinating power which allow the healing of a wound in a few hours.

With operations in the epigastric zone, the great danger is from bronchopulmonary complications and he ascribes this to a paralyzing influence on the bronchi by reflex action from injury of the sympathetic during the operation. This may occur without infection from the wound, as he has seen these bronchopulmonary complications develop when the wound was healing smoothly and aseptically. On account of the pain, the patient breathes as gently as possible and this, superposed on the reflex inhibiting tendency, reduces the already inadequate ventilation of the lungs and thus gives the saprophytes in the mouth, etc., a chance to proliferate and set up infection. The only means to ward it off is scrupulous cleanliness of the mouth and teeth before the operation, and exercises in breathing, especially deep inspirations, after the operation, favored by the semisecated position.

Lavage of the stomach wards off acute paralysis of the stomach; it has been most frequent in his experience after gallstone operations. He does not wait for the patient to

vomit or develop fever, but rinses out the organ when there is repeated malodorous eructation and the patient feels distressed. He repeats the lavage every six or eight hours and normal peristalsis usually is soon restored. Vomiting of black blood is combated in the same way, and conditions are usually brought back to normal.

He adds that he has several times found the first part of the ileum adherent in a vertical position to the posterior aspect of the stomach, as if Nature was about to do gastro-enterostomy. He reiterates that procrastination kills more persons than any disease, and that this is true of ileus and appendicitis in particular. The patient himself, his family, his physician, and even the surgeon may procrastinate from day to day, and the hour for successful intervention slips past. He adds, "In case of doubt, make an opening into the bowel above. Anything is better than to let the patient die from the poisons generated in the obstructed bowel, and do not be misled by alternations of euphoria and symptoms of obstruction." He incises on the median line to close an artificial anus, and cuts the intestine, leaving unmolested the loop fastened to the abdominal wall. After the side-to-side entero-anastomosis has been completed, he passes a forceps through the artificial anus, into each of the stumps of the bowel adherent to the wall. Seizing the free end of the stump he draws it out through the anus, inverted, like the finger of a glove. This brings the entire mucosa all outside the abdomen, the whole looking like the umbilical cord of a newly born infant. There is nothing left inside the abdomen except a small funnel lined with periosteum. This serves as a drain for a time and gradually heals up. The portion drawn out can be allowed to dry up and drop off, like the umbilical cord, or it can be cut off later when the opening has healed over beneath. All that is left can be finally buried under the skin if desired. In the after-treatment, it must never be forgotten that retention is the great enemy to be combated.

Revista de Medicina y Cirugía, Havana

July 10, 1919, 24, No. 13

Organization for Welfare Work for Prospective Mothers. (La Mutualidad Materna del Vedado.) L. Huguet.—p. 347.

Aug. 10, 1919, 24, No. 15

*Nature and Treatment of Accidents from Arsenical Treatment of Syphilis. V. Pardo Castello.—p. 395.

Accidents from Arsenical Treatment of Syphilis.—Pardo remarks in the course of this general review of his own and others' experiences, that what is called the nitritoid reaction cannot be ascribed to anaphylaxis, as a preliminary small injection before the main injection of the arsenical preparation did not attenuate or modify in any way the severe so-called nitritoid reaction in five cases in his experience. On the other hand, injection of a small amount of epinephrin warded it off completely in persons previously subject to the reaction in a severe form. This seems to sustain the assumption that this reaction is due to the vasodilator action of the drug. Serous apoplexy or hemorrhagic encephalitis is one manifestation of this nitritoid reaction, probably the result of dilation of the vessels in the brain. In a case of this kind the serous apoplexy developed three days after a second injection—0.30 and 0.45 gm. of neo-arsphenamin—with convulsions and a comatose condition. Rapid recovery followed two intramuscular injections of epinephrin. The urine confirmed the vasodilation of the viscera, numerous red corpuscles being found in the sediment. Edema at the base of both lungs was also manifest. The condition is not restricted to the brain, and hence the term serous apoplexy is more appropriate than encephalitis. In conclusion, Pardo remarks that time has reduced the list of contraindications to merely advanced nervous and heart lesions with lost compensation and extreme cachexia. He cites a case in which the needle broke off in the vein and was swept away, compelling an operation to recover it.

Semana Médica, Buenos Aires

June 19, 1919, 26, No. 25

Evolution of Urology in Argentina. J. Nin Pounday.—p. 637.
Identification of Diuria. J. A. Sánchez.—p. 642.
The Psychs of the Tuberculous. A. Cetringolo.—p. 643.
*The Examination of the Patient. R. Castaño.—p. 645.
*Changes in the Teeth from Abnormal Nutritional Processes. C. R. Castilla.—p. 651.

The Examination of the Patient.—Castaño gives an outline for systematic examination of a patient with symptoms from the urogenital apparatus.

Changes in the Teeth from Nutritional Disorders.—A previous article by Castilla was recently summarized in these columns, p. 1021. He gives here two illustrations showing the incipient and established phases of the abnormal growth of certain teeth during impaired general nutritional conditions, especially gastro-intestinal derangement, and chief among these, those of the colitis type.

June 26, 1919, 26, No. 26

*Extra Large Fetus. M. L. Pérez.—p. 661.
*Serotherapy and Vaccine Therapy of Tuberculosis. Aguilles Milano. —p. 667.
*Intestinal Metastasis of Malignant Chorio-epithelioma. M. Paulin. —p. 669.
Prophylaxis of Venereal Disease. J. Brito Foresti.—p. 670.
The Problem of Tuberculosis. C. Ferreira.—p. 684.

Large Ovum.—Péres reports the successful delivery of an apparently healthy child weighing 5,530 gm. at birth. The mother of 24 had had one healthy child and two abortions and gave a negative Wassermann reaction, but a year or two before had responded positively to the test and had taken a course of mercurial treatment. Both of the parents were medium sized. All the membranes were unusually large so that the case was one of "large ovum" (7,530 gm.) and not merely an extra large fetus. There is every probability that syphilis was a factor in the disproportionate size of the ovum.

Serotherapy and Vaccine Therapy of Tuberculosis.—Milano refers to the prepared serum and vaccine made according to Ferrán's theories in regard to the different stages of the tubercle bacillus before it becomes the actual tubercle bacillus as we generally recognize it. He claims that by seizing it in the first of its three phases and vaccinating against it, the organism becomes immune to this phase, and hence there is no chance for it to contract the infection in the succeeding phases as the indispensable first link is missing. The Ferrán theories were recently described in these columns, Aug. 9, 1919, p. 460, and Oct. 4, 1919, p. 1074.

Intestinal Metastasis of Malignant Chorio-Epithelioma.—Paulin discusses the metastasis of chorio-epithelioma and reports a case which seems to be unique, the metastasis of the chorio-epithelioma developing in the ileum, about a year after the hysterectomy. The first signs of the malignant disease had been noted seven months before this, vesicles being expelled from the uterus which was only curetted at that time.

Siglo Médico, Madrid

July 12, 1919, 66, No. 3422

Pathogenesis and Treatment of Fever. J. Sanchis Banús.—p. 553.
Studies on the Dynamics of the Heart under the Influence of Certain Drugs. Mimel Bañuelos García.—p. 556. Cont'n.

July 19, 1919, 66, No. 3423

*Influence of Aviation Flights on Glycemia. G. Marañón.—p. 573.
Tardy Inherited Syphilis. B. Hernández Bris.—p. 574.
Peculiarities of Certain Pistol Shots. Arsenio Plans.—p. 576.

Influence of Aviation Flights on Glycemia.—Marañón tabulates the findings in regard to the sugar content of the blood before and after the emotional stress of aviation flights. They show a marked variation, from 0.12 to 0.20; from 0.10 to 0.15; from 0.15 to 0.12 and so on. The pulse also showed great variations, as well as the maximal and minimal blood pressure. Even in two pilots accustomed to several flights every day, the glycemia ran up from 0.10 to 0.15 and from 0.12 to 0.20, but the blood pressure did not show much change.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 21, 1919, 1, No. 25

*The Physician in the Service of the Police. G. van Rijnberk.—p. 2173.
Neoarsphenamin in Syphilis and Parasyphilis of the Nervous System. L. Bouman.—p. 2183.
The Fourth Sickness. G. A. Prins.—p. 2191.
Lethargic Encephalitis in Boy of Ten; Recovery. J. S. van Heukelom. —p. 2199.

The Physician in the Service of the Police.—Van Rijnberk refers to a recent sensational murder trial in the Netherlands in which various psychologic tests were applied to the accused, such, for instance, as testing his pulse without his knowledge as he was being taken over the scene of his crime. A physician applied the tests, and to this van Rijnberk most seriously objects, saying it is counter to all the traditions of trust and sympathy on the part of the members of the profession to have them utilize their knowledge to railroad a man to the gallows. He suggests that some special member of the police force might be trained for such tests and avoid calling on the medical profession.

June 28, 1919, 1, No. 26

*Negative Wassermann Reaction with Ocular and Cerebral Syphilis. J. H. Roorda Smit.—p. 2256.
*"Edema Disease" in the Netherlands. W. Beyermann.—p. 2265.
The Practice of Medicine as a State Service. R. Bremberg.—p. 2270.
Perineal Displacement of the Testicle with Inguinal Hernia. W. P. J. Hoogveld.—p. 2272.

Negative Wassermann in Ocular and Cerebral Syphilis.—Smit declares that we must not pay much heed to negative Wassermann reactions in syphilis affecting the nervous system and the eyes. The response with blood was constantly negative in 12 of the 14 cases he has encountered in the last three years. In half of them the blood vessels and in the other half the cornea or the heart seemed to be primarily affected. In only 2 of the 12 was there a history of known syphilis. In 2 of the cases in which the syphilis had run an insidious course, it flared up with stormy symptoms during an intercurrent infectious disease, as also in 2 others who were not given the Wassermann test. One of these developed apoplexy after typhoid, with oculomotor paralysis, tabes, diabetes insipidus, prostatitis and weakness of the heart; another after pleurisy had diabetes insipidus and multiple adhesions in the pleura, with shriveling of the lung. Tabes in one case seemed to retrogress under twelve intramuscular injections of mercury peptonate, from 0.01 to 0.03 c.c. in 3 c.c. of water. Notwithstanding the negative response to the Wassermann test, the radical improvement under mercury confirmed the diagnosis of syphilis.

Famine Edema in the Netherlands.—Beyermann states that twelve of the inmates of the insane asylum at Medemblik developed in 1917 and 1918 edema and other symptoms which suggested scurvy or purpura except for the remarkably slow pulse and the absence of changes in the gums. Conditions returned promptly to normal without other measures than the addition of fresh vegetables to the otherwise unmodified diet.

July 12, 1919, 2, No. 2

The Physician and the National Medical Organization and Society at Large. H. Burget.—p. 81.
Treatment of Pseudarthrosis. R. A. Tange.—p. 91.
*Epidemic Meningitis and Bacilli Carriers. C. Orbaan.—p. 101.
Measurement of the Blood Pressure. L. Kaiser.—p. 105.

Epidemic Meningitis.—Orbaan relates his experiences with eighteen cases of epidemic meningitis in the military hospital at Harderwijk. No permanent paralysis of cranial nerves was observed in the thirteen survivors. One man was left a carrier of meningococci in the spinal fluid although the nasopharyngeal secretions seemed sterile. In another case the symptoms developed with lightning-like rapidity; the antiserum was used without delay and recovery proceeded with almost equal haste. Orbaan found it extremely useful to separate the men into groups to examine for carriers. When a group was found free from a carrier, all the members of the group were allowed their freedom. By separating into constantly smaller groups, it thus proved possible to reduce to a very small number those requiring isolation. The average was always from 1 to 4 per cent. of carriers, and when these carriers were isolated the building seemed to be freed from the disease. A counter-proof as to the importance of carriers was furnished by his examination of a group of 250 interned Belgians among whom there had never been any cases of meningitis. Careful search failed to reveal a single carrier among them.

Nordiskt Medicinskt Arkiv, Stockholm

March 10, 1919, 51, Internal Medicine Section No. 3

*Tumors of the Carotid Gland. J. Reenstierna.—p. 215.
*To Calculate the Speed of Intoxication with Carbon Monoxid. H. Gertz.—p. 227.
*The Skin Changes with Lymphogranulomatosis. S. Hesser.—p. 253.
Taking the Silver Stain not a Reliable Sign of Death of Bacteria. A. Cedercreutz.—p. 279.
*The Nervous Apparatus of the Heart and Pericarditis. E. Perman. —p. 282.

Tumors of Carotid Gland.—Reenstierna adds two to the list of tumors of the carotid gland on record, bringing the total to sixty-six. (In English.)

Velocity of Carbon Monoxid Poisoning.—Gertz' calculations show that the toxic action of carbon monoxid develops comparatively slowly at first. With twenty normal respirations—about one minute's time—there is no risk of asphyxia or of loss of consciousness unless the air contains very large amounts of carbon monoxid. (In French.)

Skin Changes with Lymphogranulomatosis.—Hesser gives an illustrated description of the case of a young man with lymphogranulomatosis and a localized eruption which followed the track of the lymphatics in certain regions. His photomicrographs show a striking resemblance between this eruption and Kaposi's sarcoid.

The Innervation of the Heart with Pericarditis.—Perman's necropsy findings confirm the inflammatory changes almost certain to occur in the subpericardial nervous apparatus when the pericardium is diseased. Study of the condition and functioning of the innervation of the heart during pericarditis might throw much light on the physiology of the heart if undertaken early, before much effusion masks conditions.

Ugeskrift for Læger, Copenhagen

Aug. 14, 1919, 81, No. 33

*Roentgen Treatment of Cancer. S. Nordentoft.—p. 1307.
To Determine Specific Gravity of Small Amounts of Urine. H. C. Hagedorn.—p. 1319.

Roentgen Treatment of Cancer.—Nordentoft has long been preaching and practicing the treatment of malignant tumors with a single intensive exposure to the roentgen rays, striking hard and thoroughly once for all. It is a risky thing, he says, to apply roentgen treatment when some other physician has given one or more exposures before. The question then is whether to leave the patient to die of the cancer or run the almost equally dangerous risk of roentgen necrosis; in this latter case there is usually some discredit for the physician. He now refuses to treat any patients with brain tumor who have been previously rayed. He relates some cases to show the danger from wasting time on medical measures with a tumor in the throat or nose, and says that the regional glands in the neck with a tumor in the pharynx should not be operated on without microscopic examination. In one case described, a girl of 17 had a sarcoma of the femur subside under roentgen treatment and also a large metastasis in the temporal region. The primary focus in the femur flared up anew but again subsided under roentgen treatment and a metastasis in the mastoid process retrogressed spontaneously. The girl is now apparently perfectly well and looks healthy, but new metastases are liable to develop at any time. Our conceptions of metastasis require revision, he says, as recent research has demonstrated that metastases occur much earlier and on a more extensive scale than hitherto deemed possible, but that they are unable to develop as long as the resisting powers keep at a good level. The spontaneous retrogression of the tumor in the mastoid process in this case justifies the hope that other metastases might undergo the same fate.

He refers in conclusion to the use of autovaccines, saying that the effects of raying a tumor are equivalent to an autovaccination on a large scale, and with much more thorough incorporation than with injection of any possible vaccine. But no immunization against new attacks results, and this shows, he says, how futile such vaccines must be in therapeutics.